transactions of the ASME

SOCIETY RECORDS ASME ANNUAL AM-5 JANUARY 1979

indexes to 1978 publications

WHERE TO FIND ASME TRANSACTIONS

INDEXES TO ASME PAPERS AND PUBLICATIONS

INDEX TO MECHANICAL ENGINEERING

INDEX TO TRANSACTIONS OF THE ASME

PUBLISHED BY THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS

transactions of the ASME

Published by
The American Society of
Mechanical Engineers

Volume 101
JANUARY 1979

indexes to 1978 publications

EDITORIAL STAFF

Editor, J. J. JAKLITSCH, JR.
Associate Editor, HAROLD BREDIN
Staff Editor, SAMUEL WALTERS
Assistant Editor, ELIZ. CALVELLI
New Editor, ALLEN MORRISON
Contributing Editor, FRITZ HIRSCHFELD
Copy/Production Editor,
VICKI KOESTLER
Art Editor, GALINA SAZONOV
Design Consultant, MARK SNYDER
Transactions Production, V. HEANEY,
C. MONAHAN, S. ROBINSON,
L. ROSENFELD, F. WOOTEN
Editorial Production Assistant,
KIRSTEN DAHL

POLICY BOARD, COMMUNICATIONS

Chairman and Vice President
IRWIN BERMAN

Members-at-Large
J. W. LOCKE
J. E. ORTLOFF
M. J. RABINS
W. J. WARREN

Policy Board Representatives
Basic Engineering, FRED LANDIS
Industry, M. M. LIVINGSTON
General Engineering, D. D. ACKER
Power, R. E. REDER
Codes and Standards, P. M. BRISTER
Research, G. P. COOPER
Computer Tech. Comm, A. A. SEIREG
Nat'l. Nom. Comm, S. P. ROGACKI
Managing Director, Publishing,
C. O. SANDERSON

OFFICERS OF THE ASME

President, O. L. LEWIS
Exec. Dir. & Secy., ROGERS B. FINCH
Deputy Executive Dir.,
PETER CHIARULLI
Treasurer, ROBERT A. BENNETT
Vice Presidents, IRWIN BERMAN,
P. W. BRAISTED, A. J. CLARK, JR.,
S. H. CRANDALL, R. B. GAITHER,
R. A. KENYON, F. F. LING,
J. L. MANGAN, J. W. McKIERNAN,
D. R. McLEISH, M. W. MILLIGAN,
J. T. POPE, RICHARD ROSENBERG,
P. S. ROSOFF, F. M. SCOTT,
H. R. SHARP, L. S. SMITH,
C. C. SPACE, R. P. TROWBRIDGE,
R. I. VACHON, C. O. VELZY

Published by The American Society of Mechanical Engineers. The editorial department is located at the headquarters of the Society, 345 East Forty-Seventh Street, New York, N. Y. 10017. Cable address, "Mechaneer," New York.

TRANSACTIONS OF THE ASME is indexed by the Engineering Index, Inc.

Where You Will Find ASME Transactions

In United States and Territories SR-1
In Other Countries SR-4

Indexes to ASME Papers and Publications SR-6
Regular Society Publications, 1978 ..... SR-6
Publications Issued in 1978 ..... SR-6
How to Find Papers Presented at 1978 ASME Meetings SR-6
Currently Available ASME Publications SR-6
Periodicals SR-16
ASME Miscellaneous Papers, 1977 ..... SR-17

Index to Mechanical Engineering, 1978 ..... SR-33

Index to Transactions of the ASME, 1978 ..... SR-151

Where You Will Find the ASME Transactions

In United States and Territories

ALABAMA

Auburn.....Auburn University
Main Library
Library, Dept. of Mech. Engrg.
Birmingham.....University of Alabama in Birmingham
Sterne Library
Huntsville.....University of Alabama in Huntsville
Main Library
Mechanical Engineering Dept. Library
Tuskegee.....Tuskegee Institute
School of Engineering Library
University.....University of Alabama
Engineering Library

ARIZONA

Flagstaff.....Northern Arizona University
Library-Acquisitions
Tempe.....Arizona State University
Arizona State University Library
Mechanical Engineering Library
Tucson.....University of Arizona
University of Arizona Library
Mech. Engrg. Dept. Library

ARKANSAS

Fayetteville.....University of Arkansas
University Library—Serials Dept.

CALIFORNIA

Berkeley.....University of California, Berkeley
General Library
Mechanical Engineering Library
Chico.....California State University, Chico
University Library
Davis.....University of California, Davis
Mechanical Engineering Dept. Library
Fresno.....Fresno State University
Student Library—School of Engineering
Fullerton.....California State University, Fullerton
Library/Periodicals
Division of Engineering Library,
Room E 100
Inglewood.....Northrop University
Alumni Library
Irvine.....University of California, Irvine
Mechanical Engineering Dept. Library
Long Beach.....California State University at Long Beach
Univ. Library—Serials Dept.
Mechanical Engineering Resource Center
Los Angeles.....California State University at Los Angeles
John F. Kennedy Memorial Library
Loyola Marymount University
Charles Van der Ahe Library—Periodicals Dept.
Mechanical Engineering Dept. Library
University of California
ASME Student Reference Room Library
Room 4173 Engineering Bldg. I
University of Southern California
Engineering Library
Monterey.....U.S. Naval Postgraduate School
Library
Mechanical Engineering Library
Northridge.....California State University at Northridge
Library—Serials Dept.
Pasadena.....California Institute of Technology
Millikan Memorial Library
Pomona.....California State Polytechnic University, Pomona
Mechanical Engineering Dept. Library
Sacramento.....California State University, Sacramento
Main Library
San Francisco.....San Francisco State University
Main Library—Periodical Dept.
Cogswell College
Library
San Luis Obispo....California State Polytechnic University,
San Luis Obispo
Library
Santa Barbara.....University of California, Santa Barbara
Elect. Engrg. Bldg.
Serials Library
Santa Clara.....University of Santa Clara
Varsi Library
Public Library
San Diego.....San Diego State University
Library—Serials Department
San Jose.....San Jose State University
Main Library—Serials Dept.
Stanford.....Stanford University
Engineering Library
Durand Room—Mechanical Engrg. Dept.

COLORADO

Boulder.....University of Colorado
Libraries—Serials Department
Fort Collins.....Colorado State University
Morgan Library
Golden.....Colorado School of Mines
Arthur Lake Library
USAF Academy....United States Air Force Academy
Academy Library

CONNECTICUT

Bridgeport.....University of Bridgeport
Library—Periodicals Dept.
Mechanical Engineering Dept. Library
Storrs.....University of Connecticut
Wilbur Cross Library
Engineering Library
West Hartford.....University of Hartford
Library
West Haven.....University of New Haven
Library

DELAWARE

Newark.....University of Delaware
Morris Library
Mech. & Aerospace Engrg. Library—Evans Hall

DISTRICT OF COLUMBIA

Washington.....Catholic University of America
Engineering Library
George Washington University
Library
Howard University
Engineering and Architectural Library
Library of Congress
National Bureau of Standards Library
U.S. Patent Office
Scientific Library

FLORIDA

Boca Raton.....Florida Atlantic University
Main Library
Mechanical Engineering Dept. Library
Coral Gables.....University of Miami
Main Library-Periodicals Dept.
Gainesville.....University of Florida
Engineering Sciences Library
Melbourne.....Florida Institute of Technology
Mechanical/Electrical Engineering Library
Library
Orlando.....Florida Technological University
Library
Tampa.....University of South Florida
Main Library—Periodical Dept.

GEORGIA

Atlanta.....Georgia Institute of Technology
Library
Marietta.....Southern Technical Institute
Technical Library

HAWAII

Honolulu.....University of Hawaii
Mechanical Engineering Dept. Library
Graduate Research Library
Hawaii State Library

IDAHO

Moscow.....University of Idaho
Library—Acquisitions Section
Mechanical Engineering Dept. Library

ILLINOIS

Chicago — Illinois Institute of Technology
Library—Technology Center
Mech. Engrg. Dept. Library
University of Illinois at Chicago Circle
ASME Student Library
Evanston — Northwestern University
Technological Institute Library
Peoria — Bradley University
Library—Periodicals Department
Springfield — Illinois State Library
Urbana — University of Illinois
Library—Serials Dept.

INDIANA

Angola — Tri-State University
Perry T. Ford Memorial Library—Periodicals Dept.
Evansville — University of Evansville
Clifford Memorial Library
Engineering Library
Fort Wayne — Indiana - Purdue Univ. at Fort Wayne
Walter Helmke Library
Hammond — Purdue University-Calumet Campus
Main Library
Lafayette — Purdue University
Notre Dame — University of Notre Dame
Engineering Library
Terre Haute — Rose-Hulman Institute
Library
Valparaiso — Valparaiso University
University Library

IOWA

Ames — Iowa State University
Science and Technology Library
Iowa City — University of Iowa
University Library—Serials Acquisition Dept.

KANSAS

Lawrence — University of Kansas
Libraries—Serials Department
Mechanical Engineering Dept. Library
Manhattan — Kansas State University
University Library
Wichita — Wichita State University
Mechanical Engineering Dept. Library

KENTUCKY

Bowling Green — Western Kentucky University
Ogden College of Sci. & Tech. -Science Library
Mechanical Engineering Tech. Library
Lexington — University of Kentucky
Engineering Library
Louisville — University of Louisville
Speed Scientific School Library

LOUISIANA

Baton Rouge — Louisiana State University
Library
Southern University
University Library
Engineering Library
Lafayette — University of Southwestern Louisiana
Dupre Library
New Orleans — Tulane University
Howard Tilton Memorial Library
University of New Orleans
Library
Ruston — Louisiana Tech University
Prescott Library

MAINE

Orono — University of Maine
Library

MARYLAND

Annapolis — U.S. Naval Academy
Library
College Park — University of Maryland
Engineering and Physical Sciences Library
Mechanical Engineering Dept. Library

MASSACHUSETTS

Amherst — University of Massachusetts
Library—Serials Dept.
Boston — Northeastern University
Dodge Library
Mechanical Engineering Dept. Library
Cambridge — Massachusetts Institute of Technology
Library—Serials and Journals
Lowell — Lowell Technological Institute
Alumni Memorial Library
Medford — Tufts University
University Library
Mech. Engrg. Library
North Dartmouth — Southeastern Massachusetts University
Main Library
Serial and Periodicals Library
Springfield — Western New England College
Churchill Library
Worcester — Worcester Polytechnic Institute
Gordon Library
Mech. Engrg. Dept. Library

MICHIGAN

Ann Arbor — University of Michigan
Engineering Library
Dearborn — University of Michigan-Dearborn
Main Campus Library
Detroit — University of Detroit
Library—Serial Dept.
Wayne State University
Kresge-Hooker Scientific Library
East Lansing — Michigan State University
Library—Serials Dept.
Engineering Library
Flint — General Motors Institute
General Motors Institute Library
Houghton — Michigan Technological University
Library—Serials Dept.
Sault Ste. Marie — Lake Superior State College
University Library
Dept. of Engineering Technology Library
Southfield — Lawrence Institute of Technology
Technical Library
School of Engineering Library

MINNESOTA

Minneapolis — University of Minnesota
Engineering Library
Design Engineering Library

MISSISSIPPI

State College — Mississippi State University
University Library
University — University of Mississippi
Mechanical Engineering Library-CH Bldg.

MISSOURI

Columbia — University of Missouri
Engineering Library
Kansas City — University of Missouri-Columbia, Kansas City
Library
Rolla — University of Missouri at Rolla
Library
St. Louis — Washington University
Library—Acquisitions Dept.

MONTANA

Bozeman — Montana State University
Library
Mech. Engrg. Dept. Library

NEBRASKA

Lincoln — University of Nebraska-Lincoln
Library—Acquisitions Dept.

NEVADA

Reno — University of Nevada
Engineering Library
Mechanical Engineering Library

NEW HAMPSHIRE

Durham — University of New Hampshire
Main Library
Hanover — Dartmouth College
Baker Memorial Library

NEW JERSEY

Hoboken — Stevens Institute of Technology
Main Library
Mechanical Engineering Dept. Library
Newark — New Jersey Institute of Technology
Library

New Brunswick.....Rutgers—The State University
Library of Science and Medicine
Mechanical & Aerospace Engrg. Dept. Library
Princeton.....Princeton University
Student Reading Room
Engineering Library
Teaneck.....Fairleigh Dickinson University
Library

NEW MEXICO

Albuquerque.....University of New Mexico
Library—Acquisitions Department
Mech. Engrg. Dept. Library
Las Cruces.....New Mexico State University
Library

NEW YORK

Albany.....New York State Library
Bronx.....State University of New York Maritime College
Stephen B. Luce Library
Manhattan College
Mechanical Engineering Dept. Library
Brooklyn.....Polytechnic Institute of New York
Library
Pratt Institute
Library
Brooklyn Public Library
Buffalo.....State University of New York at Buffalo
Science and Engineering Library
Hempstead.....Hofstra University
Library
Ithaca.....Cornell University
Engineering Library-Carpenter Hall
Jamaica, L.I.....Queens Borough Public Library
New York.....College of the City of New York
Engineering Library—Steinman Hall
Mechanical Engrg. Dept. Library
Columbia University
Egleston Library
Cooper Union
Main Library
Bateman Library—Mech. Engrg. Dept.
Engineering Societies Library
Public Library—Science and Technology Div.
Old Westbury.....New York Institute of Technology
Library
Potsdam.....Clarkson College of Technology
Library
Mechanical Engineering Dept. Library
Rochester.....University of Rochester
Rush Rhees Library
College of Engineering Library
Rochester Institute of Technology
Wallace Memorial Library
Schenectady.....Union College
Library
Stony Brook.....State University of New York, Stony Brook
Engineering Library
Main Library—Periodicals
Syracuse.....Syracuse University
Carnegie Library
Troy.....Rensselaer Polytechnic Institute
Library Serials Dept.

NORTH CAROLINA

Charlotte.....University of North Carolina-Charlotte
Atkins Library—Serials Department
College of Engineering Library
Public Library
Durham.....Duke University
Library—Periodicals 'E'
Greensboro.....North Carolina Agricultural & Tech. State Univ.
Library
Mechanical Engineering Dept. Library
Raleigh.....North Carolina State University at Raleigh
D. H. Hill Library
Mechanical & Aerospace Engrg. Dept. Library

NORTH DAKOTA

Fargo.....North Dakota State University
Library
Grand Forks.....University of North Dakota
Main Library
Mechanical Engineering Dept. Library

OHIO

Ada.....Ohio Northern Library
Heterick Library
Mechanical Engineering Reading Room
Akron.....University of Ohio
Mechanical Engineering Dept. Library
Auburn Science Library
Athens.....Ohio University
University Library
Mechanical Engrg. Library
Cincinnati.....University of Cincinnati
Library
Cleveland.....Case Western Reserve University
The Sears Library
Cleveland State University
Library
Mechanical Engineering Dept. Library
Columbus.....Ohio State University
University Libraries—Aquisitions Dept.
Dayton.....University of Dayton
Library—Periodicals Dept.
Engineers Club of Dayton
Toledo.....University of Toledo
Library—Acquisitions Dept.
Youngstown.....Youngstown State University
Mechanical Engineering Dept. Library

OKLAHOMA

Norman.....University of Oklahoma
Engineering Library
Stillwater.....Oklahoma State University
Library
Tulsa.....University of Tulsa
Sidney Born Technical Library

OREGON

Corvallis.....Oregon State University
Library—Serials Dept.
Klamath Falls.....Oregon Institute of Technology
Main Library
Portland.....University of Portland
Main Library

PENNSYLVANIA

Bethlehem.....Lehigh University
University Library
Mechanical Engineering Dept. Library
Chestnut Hill.....Spring Garden College
Main Library
Chester.....Widener College
School of Engineering Library
Easton.....Lafayette College
Skillman Memorial Library
Erie.....Gannon College
Library
Johnstown.....University of Pittsburgh at Johnstown
Main Library
Lewisburg.....Bucknell University
Bertrand Library—Periodicals Dept.
Mechanical Engineering Dept. Library
Middletown.....Pennsylvania State University-Capitol Campus
Library
Philadelphia.....Drexel University
Library
Mechanical Engineering Library
Temple University
Paley Library
College of Engrg. Tech.—Library
University of Pennsylvania
Towne Scientific Library
The Franklin Institute
Pittsburgh.....Carnegie-Mellon University
Hunt Library
Carnegie Library of Pittsburgh
University of Pittsburgh
George M. Beiver Engrg. Library
Mechanical Engineering Dept. Library
Swarthmore.....Swarthmore College
College Library
University Park....Pennsylvania State University
Pattee Library
Mechanical Engineering Dept. Library
Villanova.....Villanova University
Library
Mechanical Engineering Dept. Library

PUERTO RICO

Mayaguez.....University of Puerto Rico
College of Agricultural and
Mechanics Arts Library
Mechanical Engineering Library

RHODE ISLAND

Kingston.....University of Rhode Island
Library
Providence.....Brown University
Sciences Library

SOUTH CAROLINA

Clemson.....Clemson University
College University
Mech. Engrg. Library

Columbia.....University of South Carolina
McKissick Library—Science Room
Mechanical Engrg. Dept. Library

SOUTH DAKOTA

Brookings.....South Dakota State University
Library
Rapid City South Dakota School of Mines and Technology
J. Taylor Library
Mech. Engrg. Dept. Library

TENNESSEE

Cookeville.....Tennessee Tech University
Mechanical Engrg. Dept. Library
Knoxville.....University of Tennessee
Engineering Library
Memphis.....Christian Brothers College
Library—Periodicals Dept.
Memphis State University
John Brister Library—Serials Department
Nashville.....Tennessee State University
University Library
Engineering Library
Vanderbilt University
Joint University Libraries

TEXAS

Arlington.....University of Texas at Arlington
Library
Aero and Mech. Engrg. Dept. Library
Austin.....University of Texas at Austin
Engineering Library
Beaumont.....Lamar University
Library
Engineering Library
College Station.....Texas A & M University
Library—Serials Record
Dallas.....Southern Methodist University
Science Library
Engineering School Library
El Paso.....University of Texas at El Paso
Main Library
Galveston.....Moody College
Library
Houston.....University of Houston
Libraries—Serials
Mech. Engrg. Dept. Library
William Marsh Rice University
Fondren Library
Kingsville.....Texas A & I University
Technical Library—School of Engineering
James C. Jernigan Library
Lubbock.....Texas Tech University
Main Library
Mechanical Engineering Dept. Library
Prairie View.....Prairie View Agricultural & Mechanical Univ.
W. R. Banks Library
Engineering Library

UTAH

Logan.....Utah State University
Library
Provo.....Brigham Young University
Central Library
Mechanical Engineering Dept. Library
Salt Lake City.....University of Utah
Engineering Library—Serials Order Dept.
Mechanical Engineering Dept. Library

VERMONT

Burlington.....University of Vermont
Billings Library
Northfield.....Norwich University
Mechanical Engineering Dept. Library
Chaplin Memorial Library

VIRGINIA

Blacksburg.....Virginia Polytechnic Institute & State Univ.
Main Library
Charlottesville.....University of Virginia
Engineering Library—Thornton Hall
Norfolk.....Old Dominion College
Library

WASHINGTON

Pullman.....Washington State University
Science Library—Holland Library
Seattle.....Seattle University
Library
University of Washington
Engineering Library
Mechanical Engineering Library

WEST VIRGINIA

Montgomery.....West Virginia Institute of Technology
Vining Library
Mechanical Engrg. Library
Morgantown.....West Virginia University
Engineering Library—Evansdale Campus

WISCONSIN

Madison.....University of Wisconsin
College of Engrg. Library
Milwaukee.....Marquette University
Memorial Library
Mechanical Engineering Library
Milwaukee School of Engineering
Main Library
University of Wisconsin, Milwaukee
Main Library

WYOMING

Laramie.....University of Wyoming
Coe Library

In Other Countries

ARGENTINA

Buenos Aires.....Sociedad Cientifica

AUSTRALIA

Adelaide.....Public Library of South Australia
Melbourne.....State Library of Victoria
Nedlands.....University of Western Australia
Sydney.....Public Library of New South Wales

CANADA

British Columbia
Vancouver.....University of British Columbia
Library—Serials Div.
Ontario
Hamilton.....McMaster University
Physical Science Library
Kingston.....Queen's University
Mechanical Engineering Dept. Library
Toronto.....University of Toronto
Library—Serials Dept.
Engineering Library
Waterloo.....University of Waterloo
Mechanical Engineering Dept. Library
Library—Serials Dept.
Windsor.....University of Windsor
The Library
Mechanical Engrg. Dept. Library

ENGLAND

Birmingham.....Birmingham Reference Library
Bristol.....University of Bristol Library
Cambridge.....University of Cambridge
London.....Royal Aeronautical Society
Manchester.....Manchester College of Science and Technology
Newcastle Upon
Tyne.....North East Coast Institute of Engineers and Shipbuilders

GERMANY

Berlin-
Charlottenburg.....Technische Universität Berlin
Karlsruhe.....Universitats Bibliothek

HOLLAND

Delft.....Bibliotheek Technische Hogeschool

NORTHERN IRELAND

Belfast.....Queen's University Library
David Keir Branch

MEXICO

Mexico City.....Ciudad Universitaria
Facultad de Ingenieria
Ist Politecnico Nacional Unidad Profesional
Monterrey.....Instituto Technologico de Monterrey
Biblioteca
Depto. de Matematicas

NEW ZEALAND

Christchurch.....University of Canterbury

SCOTLAND

Glasgow.....Mitchell Library
Liverpool .....City of Liverpool Libraries

SOUTH AFRICA

Cape Town.....University of Cape Town
Jagger Library

TURKEY

Istanbul.....Bogazici Universitesi

Index to ASME Papers and Publications

Volume 100, 1978

This and the following pages will serve as a guide to the current publications of the ASME.

PUBLICATIONS ISSUED IN 1978

Books and Reports

Applications of Numerical Methods to Forming Processes - AMD Vol. 28
Computational Techniques for Interface Problems - AMD Vol. 30
Elastic Waves and Non-Destructive Testing of Materials - AMD Vol. 29
1978 Advances in Bioengineering
Case Studies in Computer Control
Nonlinear Analysis and Synthesis: Vol. 1, Fundamental Principles
Composite Materials in The Automobile Industry
Cavitation and Polyphase Flow - 1978
Fluids Engineering in Advanced Energy Systems
Fluid Transients and Acoustics in The Power Industry
Measurements in Polyphase Flows
Nonsteady Fluid Dynamics
Polyphase Flow in Turbomachinery
Topics in Fluid Film Bearing and Rotor Bearing Systems Design and Optimization
Advances in Heat and Mass Transfer at Air-Water Interfaces
Cogeneration District Heating Applications
Environmental Effects of Atmospheric Heat/Moisture Releases (Cooling Towers, Cooling Ponds, and Area Sources)
Gas Turbine Heat Transfer - 1978
Proceedings of the Seventh Symposium on Thermophysical Properties
Topics in Two-Phase Heat Transfer and Flow
Diagnosing Machinery Health
Strategy for Energy Conservation Through Tribology
Characterization of Materials for Service at Elevated Temperatures, Series MPC-7
Ductility and Toughness Considerations in Elevated Temperature Service, Series MPC-8
Measurements of the Impacts of Materials Substitution - A Case Study in the Automobile Industry
Properties of Steel Weldments for Elevated Temperature Pressure Containment Applications, Series MPC-9
SI-1 ASME Orientation and Guide for Use of SI (Metric) Units-Eighth Edition
Hyperbaric Diving Systems and Thermal Protection - OED Vol. 6
Ocean Thermal Energy Conversion - OED Vol. 5
Emerging Energy Technologies - 1978
Mining Technology for Energy Resources: Advances for the 80's
Energy Conservation in Building Heating and Air Conditioning Systems
Thermal Storage and Heat Transfer in Solar Energy Systems
Modeling, Simulation, Testing and Measurements for Solar Energy Systems
Nuclear Power Waste Technology
Computer Technology in Fusion Energy Research, Series PVP-PB-031
Coolant Boundary Integrity Considerations in Breeder Reactor Design, Series PVP-PB-027
Inservice Data Reporting and Analysis, Series PVP-PB-032
Probabilistic Analysis and Design of Nuclear Power Plant Structures, Series PVP-PB-030
Simplified Methods in Pressure Vessel Analysis, Series PVP-PB-029
Bourdon Tubes and Bourdon Tube Gages: An Annotated Bibliography
1978 National Waste Processing Conference: Energy Conservation Through Waste Utilization
Companies Holding Boiler and Pressure Vessel Certificates of Authorization for Use of Code Symbol Stamps 1978 Edition
Interpretations of The ASME Boiler and Pressure Vessel Code
The 1978 Proceedings Annual Reliability and Maintainability Symposium

HOW TO FIND PAPERS PRESENTED AT 1978 ASME MEETINGS

The technical programs of the meetings of the Society and of its Professional Division have been published in MECHANICAL ENGINEERING and may be located by consulting the index on page SR-33. Many of these papers will be published in MECHANICAL ENGINEERING or the *Transactions* and may be located by reference to the indexes of these publications. A free, up-to-date edition of the ASME Technical Papers Catalog is available on request. Xerox copies of out-of-print technical papers may be purchased from the Engineering Societies Library, 345 E. 47th St., New York, NY 10017. Phone (212) 644-7611.

Special Services

In order to expedite European orders for the ASME Boiler and Pressure Vessel Code and related titles, special arrangements have been made with the British Standards Institution, (T.H.E.) Maylands Avenue, Hemel Hempstead, Herts HP2 4SQ, England, to stock and sell these titles.

For the convenience of our customers on the West Coast, special arrangements have been made with Global Engineering Documentation Services, Inc., 3301 W. MacArthur Blvd., Santa Ana, CA 92704, to stock and sell Codes and Standards.

Complete sets of all Codes and Standards are available for sale on microfilm from Information Handling Services, 15 Inverness Way East, Englewood, CO 80150.

Select out-of-print symposia and proceedings and ASME journals may be obtained on microfilm on in xerographic form. Contact Xerox University Microfilms, Books and Collections, 300 North Zeeb Road, Ann Arbor, MI 48106.

CURRENTLY AVAILABLE ASME PUBLICATIONS

ASME members are usually eligible for a 50% discount on special publications and a 20% discount on Codes and Standards (exceptions are indicated). In all cases, L before a price indicates the list price of the volume, and M indicates member price. All books may be ordered from the ASME Order Department, 345 E. 47th Street, New York, NY 10017. Phone (212) 644-7716.

AMERICAN NATIONAL STANDARDS

Elevators, Plumbing and General Standards

A13.1-1975 Scheme for the Identification of Piping Systems, Book No. L00033, L-$3.00, M-$2.40
A17 Guide Evacuation of Passengers from Stalled Elevators (Not an ANSI Standard), Book No. A00070, L-$2.25, M-$1.80
A17.1-1978 Elevators, Dumbwaiters, Escalators, and Moving Walks (With Addenda Up to the 1981 Edition), Book No. A0096B (Bound Edition), L-$30.00, M-$24.00; Book No. A0096L (Loose-Leaf Edition), L-$30.00, M-$24.00; Book No. A0097 (Binder), L-$5.00, M-$4.00
A17.2-1973 Inspectors' Manual-American National Standard Practice for the Inspection of Elevators, Escalators and Moving Walks, Book No. A00049, L-$10.00, M-$8.00
A40.5-1943 Threaded Cast Iron Pipe for Drainage, Vent and Waste Services, Book No. M00022, L-$2.25, M-$1.80
A40.8-1955 National Plumbing Code (Withdrawn by ANSI), Book No. L00010, L-$6.75, M-$5.40
A90.1-1976 Safety Standard for Manlifts, Book No. B00008, L-$4.50, M-$3.60
A112.1.2-1942 (R1973) Air Gaps in Plumbing Systems, Book No. J00041, L-$2.75, M-$2.20
A112.6.1-1972 Supports for Off-the-Floor Plumbing Fixtures for Public Use, Book No. J00043, L-$3.50, M-$2.80
A112.11.1-1973 Drinking-Fountains and Self-Contained Mechanically Refrigerated Drinking-Water Coolers, Book No. J00039, L-$3.25, M-$2.60
A112.14.1-1975 Backwater Valves, Book No. J00035, L-$3.00, M-$2.40
A112.18.1-1975 Finished and Rough Brass Plumbing Fixture Fittings, Book No. J00029, L-$4.00, M-$3.20
A112.19.1-1973 Enameled Cast Iron Plumbing Fixtures, Book No. J00011, L-$3.50, M-$2.80
A112.19.2-1973 Vitreous China Plumbing Fixtures, Book No. J00012, L-$4.50, M-$3.60
A112.19.3-1976 Stainless Steel Plumbing Fixtures (Designed for Residential Use), Book No. J00050, L-$4.50, M-$3.60
A112.19.4-1977 Porcelain Enameled Formed Steel Plumbing Fixtures, Book No. J00064, L-$4.00, M-$3.20
A112.21.1-1968 (R1974) Floor Drains, Book No. J00040, L-$3.50, M-$2.80
A112.21.2-1971 Roof Drains, Book No. J00002, L-$2.75, M-$2.20
A112.21.3-1976 Hydrants for Utility and Maintenance Use, Book No. J00051, L-$4.00, M-$3.20
A112.26.1-1969 (R1975) Water Hammer Arresters, Book No. K00020, L-$4.00, M-$3.20
A112.36.2-1975 Metallic Cleanouts, Book No. J00045, L-$3.00, M-$2.40

Threads & Limits and Fits

B1 Report (1972) ISO Metric Screw Threads (Not an ANSI Standard), Book No. N00046, L-$4.50, M-$3.60
B1.1-1974 Unified Inch Screw Threads (UN and UNR Thread Form), Book No. M00028, L-$15.00, M-$12.00
B1.2-1974 Gages and Gaging for Unified Inch Screw Threads, Book No. N00058, L-$11.00, M-$8.80
B1.5-1977 Acme Screw Threads, Book No. N00027, L-$10.00, M-$8.00

B1.7-1977 Nomenclature Definitions and Letter Symbols for Screw Threads Book No. L00011, L-$4.50, M-$3.60
B1.8-1977 Stub Acme Screw Threads, Book No. N00028, L-$7.50, M-$6.00
B1.9-1973 Buttress Inch Screw Threads 7°/45° Form With 0.6 Pitch Basic Height of Thread Engagement, Book No. N00029, L-$5.00, M-$4.00
B1.10-1958 Unified Miniature Screw Threads, Book No. N00025, L-$3.00, M-$2.40
B1.11-1958 (R1972) Microscope Objective Thread, Book No. N00020, L-$2.25, M-$1.80
B1.12-1972 Class 5 Interference—Fit Thread, Book No. N00032, L-$2.75, M-$2.20
B1.16-1972 American Gaging Practice for Metric Screw Threads, Book No. N00026, L-$5.00, M-$4.00
B1.20.3-1976 Dryseal Pipe Threads (Inch), Book No. N00076, L-$6.00, M-$4.80
B1.20.4-1976 Dryseal Pipe Threads (Metric Translation of ANSI B1.20.3-1976), Book No. N00077, L-$6.00, M-$4.80
B2.1-1968 Pipe Threads (Except Dryseal), Book No. L00018, L-$5.50, M-$4.40
B2.2-1968 Dryseal Pipe Threads, Book No. M00036, L-$5.50, M-$4.40
B2.4-1966 (R1974) Hose Coupling Screw Threads, Book No. K00014, L-$3.25, M-$2.60
B4.1-1967 (R1974) Preferred Limits and Fits for Cylindrical Parts, Book No. L00022, L-$4.00, M-$3.20
B4.2-1978 Preferred Metric Limits and Fits, Book No. L00054, L-$15.00, M-$12.00
B4.3-1978 General Tolerances For Metric Dimensioned Products, Book No. L00055, L-$3.00, M-$2.40

Machine Tools

B5.1-1975 T-Slots, Their Bolts, Nuts and Tongues, Book No. M00024, L-$3.00, M-$2.40
B5.5-1959 (R1972) Rotating Air Cylinders and Adapters, Book No. L00031, L-$2.25, M-$1.80
B5.8-1972 Chucks and Chuck Jaws, Book No. J00024, L-$4.50, M-$3.60
B5.9-1967 (R1972) Spindle Noses for Tool Room Lathes, Engine Lathes, Turret Lathes and Automatic Lathes, Book No. M00010, L-$4.00, M-$3.20
B5.10-1963 (R1972) Machine Tapers, Book No. L00004, L-$4.00, M-$3.20
B5.11-1964 (R1973) Spindle Noses and Adjustable Adapters for Multiple Spindle Drilling Heads, Book No. M00008, L-$2.25, M-$1.80
B5.16-1952 (R1972) Accuracy of Engine and Tool Room Lathes, Book No. J00004, L-$2.25, M-$1.80
B5.18-1972 Spindle Noses and Tool Shanks for Milling Machines, Book No. M00009, L-$3.50, M-$2.80
B5.25-1978 Punch and Die Sets, Book No. L00027, L-$4.50, M-$3.60
B5.28-1971 Mounting Dimensions of Lubricating and Coolant Pumps for Machine Tools, Book No. L00009, L-$2.75, M-$2.20
B5.32-1977 Grinding Machines, Surface, Reciprocating Table—Horizontal Spindle, Book No. J00028, L-$4.00, M-$3.20
B5.32.1-1977 Grinding Machines, Surface, Reciprocating Table—Vertical Spindle, Book No. J00053, L-$3.00, M-$2.40
B5.33-1970 External Cylindrical Grinding Machines—Plain, Book No. M00038, L-$2.75, M-$2.20
B5.35-1969 (R1975) Machine Mounting Specifications for Abrasive Discs and Plate Mounted Wheels, Book No. M00035, L-$3.50, M-$2.80
B5.37-1970 External Cylindrical Grinding Machines—Centerless, Book No. M00039, L-$2.25, M-$1.80
B5.40-1977 Spindle Noses and Tool Shanks for Horizontal Boring Machines, Book No. M00048, L-$6.00, M-$4.80
B5.41-1968 (R1973) Quill Flanges and Spindle Ends for Upright and Horizontal Drill Spindles for Production Type Drilling Machines, Book No. K00018, L-$2.25, M-$1.80
B5.42-1970 External Cylindrical Grinding Machines—Universal, Book No. M00040, L-$2.50, M-$2.00
B5.43-1977 Modular Machine Tool Standards, Book No. M00021, L-$4.00 M-$3.20
B5.44-1971 Rotary Table Surface Grinding Machines, Book No. M00061, L-$3.50, M-$2.80
B5.45-1972 Milling Machines, Book No. M00067, L-$2.75, M-$2.20
B5.46-1972 Symbols for Machine Tool Indicator Plates, Book No. M00065, L-$4.50, M-$3.60
B5.47-1972 Milling Machine Arbor Assemblies, Book No. M00074, L-$3.50, M-$2.80
B5.48-1977 Ball Screws, Book No. M00089, L-$3.50, M-$2.80
B5.49-1977 Glossary of Mechanical Press Terms, Book No. M00090, L-$3.50, M-$2.80

Gears & Power Transmission Safety

B6.1-1968 (R1974) Tooth Proportions for Coarse-Pitch Involute Spur Gears, Book No. M00011, L-$4.00, M-$3.20
B6.7-1967 (R1974) Tooth Proportions for Fine-Pitch Involute Spur and Helical Gears, Book No. M00026, L-$5.00, M-$4.00
B6.9-1956 (R1962) Design for Fine-Pitch Wormgearing, Book No. J00026, L-$2.25, M-$1.80
B6.12-1964 (R1974) Nomenclature of Gear-Tooth Wear and Failure, Book No. L00012, L-$4.00, M-$3.20
B6.13-1965 (R1974) System for Straight Bevel Gears, Book No. M00020, L-$4.00, M-$3.20
B15.1-1972 Safety Standard for Mechanical Power Transmission Apparatus, Book No. B00009, L-$4.00, M-$3.20

Pipe Flanges, Fittings, Gaskets & Valves

B16.1-1975 Cast Iron Pipe Flanges and Flanged Fittings—Class 25, 125, 250 and 800, Book No. J00017, L-$6.00, M-$4.80
B16.3-1977 Malleable-Iron Threaded Fittings, Class 150 and 300, Book No. L00005, L-$6.00, M-$4.80
B16.4-1977 Cast-Iron Threaded Fittings, Class 125 and 250, Book No. J00022, L-$5.00, M-$4.00
B16.5-1977 Steel Pipe Flanges and Flanged Fittings (Including Ratings for Class 150, 300, 400, 600, 900, 1500, and 2500), Book No. M00015, L-$15.00, M-$12.00
B16.9-1978 Factory-Made Wrought Steel Buttwelding Fittings, Book No. M00014, L-$7.50, M-$6.00
B16.10-1973 Face-to-Face and End-to-End Dimensions of Ferrous Valves, Book No. J00031, L-$4.00, M-$3.20
B16.11-1973 Forged Steel Fittings, Socket-Welding and Threaded, Book No. M00016, L-$3.00, M-$2.40
B16.12-1977 Cast-Iron Threaded Drainage Fittings, Book No. J00021, L-$4.50, M-$3.60
B16.14-1977 Ferrous Pipe Plugs, Bushings and Locknuts with Pipe Threads, Book No. J00032, L-$4.50, M-$3.60
B16.15-1971 Cast Bronze Threaded Fittings, 125 and 250 lb., Book No. J00010, L-$3.50, M-$2.80
B16.18-1972 Cast Bronze Solder Joint Pressure Fittings, Book No. J00015, L-$3.50, M-$2.80
B16.20-1973 Ring-Joint Gaskets and Grooves for Steel Pipe Flanges, Book No. L00030, L-$4.50, M-$3.60
B16.21-1978 Nonmetallic Gaskets for Pipe Flanges, Book No. L00015, L-$5.00, M-$4.00
B16.22-1973 Wrought Copper and Bronze Solder-Joint Pressure Fittings, Book No. M00030, L-$3.50, M-$2.80
B16.23-1976 Cast Copper Alloy Solder Joint Drainage Fittings - DWV, Book No. J00014, L-$15.00, M-$12.00
B16.24-1971 Bronze Flanges and Flanged Fittings, 150 and 300 lb., Book No. J00009, L-$3.50, M-$2.80
B16.25-1972 Buttwelding Ends, Book No. J00013, L-$4.00, M-$3.20
B16.26-1975 Cast Copper Alloy Fittings for Flared Copper Tubes, Book No. J00008, L-$3.00, M-$2.40
B16.28-1978 Wrought Steel Buttwelding Short Radius Elbows and Returns, Book No. M00053, L-$4.50, M-$3.60
B16.29-1973 Wrought Copper and Wrought Copper Alloy Solder-Joint Drainage Fittings, Book No. N00057, L-$4.00, M-$3.20
B16.31-1971 Non-Ferrous Pipe Flanges, 150, 300, 400, 600, 900, 1500 and 2500 lb., Book No. J00042, L-$4.00, M-$3.20
B16.32-1973 Cast Bronze Solder - Joint Fittings for Solvent Drainage Systems, Book No. J00044, L-$3.50, M-$2.80
B16.33-1973 Small Manually Operated Metallic Gas Valves in Gas Distribution Systems Whose Maximum Allowable Operating Pressure Does Not Exceed 60 PSIG or 125 PSIG, Book No. J00006, L-$4.00, M-$3.20
B16.34-1977 Steel Valves (Flanged and Buttwelding End), Book No. J00018, L-$15.00, M-$12.00
B16.36-1975 Steel Orifice Flanges, Class 300, 600, 900, 1500 and 2500, Book No. J00046, L-$4.00, M-$3.20
B.16.38-1978 Large Manually Operated Metallic Gas Valves in Gas Distribution Systems Whose Maximum Allowable Operating Pressure Does Not Exceed 125 psig (8.6 bar, gage), Book No. J00055, L-$3.50, M-$2.80
B16.39-1977 Malleable Iron Threaded Pipe Unions, Class 150, 250 and 300, Book No. L00049, L-$4.00, M-$3.20
B16.40-1977 Manually Operated Thermoplastic Gas Shut-Offs and Valves in Gas Distribution Systems, Book No. J00054, L-$3.00, M-$2.40

Fasteners & Keys

B17.1-1967 (R1973) Keys and Keyseats, Book No. J00038, L-$2.75, M-$2.20
B17.2-1967 (R1972) Woodruff Keys and Keyseats, Book No. J00037, L-$2.75, M-$2.20
B18.1.1-1972 Small Solid Rivets, Book No. M00006, L-$3.50, M-$2.80
B18.1.2-1972 Large Rivets, Book No. K00023, L-$2.75, M-$2.20
B18.2.1-1972 Square and Hex Bolts and Screws, Book No. M00014, L-$4.50, M-$3.80
B18.2.2-1972 Square and Hex Nuts, Book No. M00043, L-$4.50, M-$3.80
B18.3-1977 Socket Cap, Shoulder and Set Screws—Inch Series, Book No. M00007, L-$6.00, M-$4.80
B18.3.1-1978 Socket Head Cap Screws (Metric Series), Book No. M00094, L-$6.00, M-$4.80
B18.5-1971 Round Head Bolts, Book No. L00032, L-$3.25, M-$2.60
B18.6.1-1972 Wood Screws, Book No. M00005, L-$4.00, M-$3.20
B18.6.2-1972 Slotted Head Cap Screws, Square Head Set Screws and Slotted Headless Set Screws, Book No. K00012, L-$4.00, M-$3.20
B18.6.3-1972 Machine Screws and Machine Screw Nuts, Book No. M00004, L-$9.50, M-$7.60
B18.6.4-1966 (R1975) Slotted and Recessed Head Tapping Screws and Metallic Drive Screws, Book No. N00021, L-$6.00, M-$4.80
B18.7-1972 General Purpose Semi-Tubular Rivets, Full Tubular Rivets, Split Rivets and Rivet Caps, Book No. N00059, L-$3.50, M-$2.80
B18.8.1-1972 (R1977) Clevis Pins and Cotter Pins, Book No. L00024, L-$2.75, M-$2.20
B18.8.2-1978 Taper Pins, Dowel Pins, Straight Pins, Grooved Pins and Spring Pins (Inch Series), Book No. L00056, L-$7.00, M-$5.60
B18.9-1958 (R1977) Plow Bolts, Book No. L00021, L-$2.75, M-$2.20
B18.10-1963 (R1975) Track Bolts and Nuts, Book No. M00025, L-$2.75, M-$2.20
B18.11-1961 (R1975) Miniature Screws, Book No. K00037, L-$2.75, M-$2.20
B18.12-1962 (R1975) Glossary of Terms for Mechanical Fasteners, Book No. M00046, L-$6.50, M-$5.20
B18.13-1965 (R1975) Screw and Washer Assemblies—Sems, Book No. N00043, L-$3.50, M-$2.80
B18.15-1969 Forged Eyebolts, Book No. M00037, L-$3.50, M-$2.80
B18.17-1968 (R1975) Wing Nuts, Thumb Screws and Wing Screws, Book No. J00005, L-$3.50, M-$2.80
B18.21.1-1972 Lock Washers, Book No. L00002, L-$3.50, M-$2.80

B18.22.1-1965 (R1975) Plain Washers (Redesignation of B27.2-1965), Book No. L00019, L-$2.75, M-$2.20
B18.23.1-1967 (R1975) Beveled Washers (Redesignation of B27.4-1967), Book No. L00006, L-$2.25, M-$1.80

Transmission Chains, Washers, Conveyors & Compressors

B19.3-1972 Safety Standard for Compressors for Process Industries, Book No. B00003, L-$3.50, M-$2.80
B20.1-1976 Safety Standards for Conveyors and Related Equipment, Book No. B00005, L-$4.00, M-$3.20
B27.5-1969 General Purpose Rectangular Uniform Section Retaining Rings, Book No. L00023, L-$2.75, M-$2.20
B27.6-1972 (R1977) General Purpose Uniform Cross Section Spiral Retaining Rings, Book No. L00037, L-$5.00, M-$4.00
B.27.7-1977 General Purpose Tapered and Reduced Cross Section Retaining Pins (Metric), Book No. L00053, L-$4.00, M-$3.20
B29.1-1975 Precision Power Transmission Roller Chains Attachments and Sprockets, Book No. M00050, L-$7.50, M-$6.00
B29.2-1957 (R1971) Inverted Tooth (Silent) Chains and Sprocket Teeth, Book No. M00002, L-$3.50, M-$2.80
B.29.3-1977 Double-Pitch Power Transmission Roller Chains and Sprockets, Book No. K00075, L-$4.50, M-$3.60
B29.4-1972 Double-Pitch Conveyor Roller Chains, Attachments, and Sprockets, Book No. M00072, L-$4.25, M-$3.40
B29.6-1972 Steel Detachable Link Chains, Attachments and Sprockets, Book No. M00066, L-$5.50, M-$4.40
B29.7-1971 Malleable Iron Detachable Link Chain and Attachments, Book No. M00018, L-$4.50, M-$3.60
B29.8-1977 Leaf Chain, Clevises and Sheaves, Book No. M00003, L-$5.00, M-$4.00
B29.9-1958 (R1974) Small Pitch Silent Chains and Sprocket Tooth Form Less Than 3/8" Pitch, Book No. K00077 L-$2.75, M-$2.20
B29.10-1972 Heavy Duty Offset Sidebar Power Transmission Roller Chains and Sprocket Teeth, Book No. M00078, L-$5.00, M-$4.00
B29.11-1974 Combination Chains, Attachments and Sprocket Teeth, Book No. K00081, L-$5.50, M-$4.40
B29.12-1974 Steel Bushed Rollerless Chains, Attachments and Sprocket Teeth, Book No. K00030, L-$3.50, M-$2.80
B29.13-1972 700 Class Pintle Chains, Attachments and Sprocket Teeth, Book No. M00064, L-$3.50, M-$2.80
B29.14-1978 "H" Type Mill Chains—Attachments and Sprocket Teeth, Book No. M00062, L-$5.00, M-$4.00
B29.15-1973 Heavy Duty Roller Type Conveyor Chains and Sprocket Teeth, Book No. M00079, L-$3.50, M-$2.80
B29.16-1974 Welded Steel Type Mill Chains, Attachments, and Sprocket Teeth, Book No. K00079, L-$4.50, M-$3.60
B29.17-1974 Hinge Type Flat Top Conveyor Chains and Sprocket Teeth, Book No. K00078, L-$3.50, M-$2.80
B29.18-1974 Welded Steel-Type Drag Chains, Attachments, and Sprocket Teeth, Book No. K00080, L-$3.50, M-$2.80
B29.19-1976 A and CA550 and 620 Roller Chains, Attachments, and Sprockets, Book No. K00085, L-$4.50, M-$3.60

Cranes, Derricks, Hoists, Jacks & Slings

B30.1-1975 Jacks, Book No. B00007, L-$4.00, M-$3.20
B30.2.0-1976 Overhead and Gantry Cranes (Top Running Bridge, Multiple Girder), Book No. B00011, L-$6.00, M-$4.80
B30.3-1975 Hammerhead Tower Cranes, Book No. J00033, L-$4.50, M-$3.60
B30.4-1973 Portal, Tower and Pillar Cranes, Book No. J00001, L-$4.50, M-$3.60
B30.5-1968 Crawler, Locomotive and Truck Cranes, Book No. B00012, L-$4.00, M-$3.20
B30.6-1977 Derricks, Book No. B00013, L-$4.50, M-$3.60
B30.7-1977 Base Mounted Drum Hoists, Book No. B00002, L-$4.50, M-$3.60
B30.8-1971 Floating Cranes and Floating Derricks, Book No. J00023, L-$4.50, M-$3.60
B30.9-1971 Slings, Book No. B00010, L-$5.00, M-$4.00
B30.10-1975 Hooks, Book No. J00048, L-$4.00, M-$3.20
B30.11-1973 Monorail Systems and Underhung Cranes, Book No. B00015, L-$4.00, M-$3.20
B30.12-1975 Handling Loads Suspended from Rotorcraft, Book No. J00047, L-$5.50, M-$4.40
B30.13-1977 Controlled Mechanical Storage Cranes, Book No. J00052, L-$6.00, M-$4.80
B30.15-1973 Mobile Hydraulic Cranes, Book No. B00017, L-$5.50, M-$4.40
B30.16-1973 Overhead Hoists, Book No. B00001, L-$4.50, M-$3.60

Piping

B31 Interpretations: Code for Pressure Piping, All current cases, Book No. M00033, L-$13.00, M-$10.40. Three Year Subscription Service, L-$18.00, M-$14.40
Sets forth the conditions under which new materials may be used, the Committee's interpretations of code rules as they apply to specific construction problems of code users, and special provisions to cover conditions encountered in nuclear installations. Individual Cases (Book No. M00034) are available at $1.50, ASME members $1.20. Please specify individual Case number.
B31 Guide, Corrosion Control for ANSI B31.1 Power Piping Systems, Book No. A00089, L-$2.00, M-$1.60
B31.1-1977 Power Piping (with Addenda up to the 1980 edition), Book No. A00058, L-$50.00, M-$40.00
B31.2-1968 Fuel Gas Piping, Book No. A00036, L-$5.00, M-$4.00
B31.3-1977 Chemical Plant and Petroleum Refinery Piping (with Addenda up to the 1980 Edition), Book No. A00037, L-$50.00, M-$40.00
B31.4-1974 Liquid Petroleum Transportation Piping Systems (Including 1977 Addenda), Book No. A00038, L-$10.00, M-$8.00
B31.4a-1978 Referenced Standards Addendum to B31.4-1974, Liquid Petroleum Transportation Piping Systems, Book No. A00039, L-$1.25, M-$1.00
B31.5-1974 Refrigeration Piping, Book No. A00040, L-$9.50, M-$7.60
B31.8-1975 Gas Transmission and Distribution Piping Systems, Book No. A00045, L-$15.00, M-$12.00
ASME Guide for Gas Transmission and Distribution Piping Systems—1976 Including all Addenda through December 1978 (See page SR-12—ASME Standards), Book No. A00030, L-$100.00, M-$80.00; Binder for Gas Guide, Book No. A00028, L-$7.50, M-$6.00

Surface Texture, Pipe, Gages, and Industrial Trucks

B32.1-1952 (R1977) Preferred Thickness for Uncoated, Thin, Flat Metals (Under 0.250 in.), Book No. L00025, L-$2.25, M-$1.80
B32.2-1969 (R1974) Preferred Diameters for Round Wire—0.500 inches and under, Book No. M00012, L-$2.25, M-$1.80
B.32.3a-1978 Supplement to ANSI B32.3-1977, Preferred Metric Sizes for Flat Metal Products 1978, Book No. L0045A, L-$1.00, M-$.80
B32.3-1977 Preferred Metric Thicknesses and Widths for Flat Metal Products, Book No. L00045, L-$2.50, M-$2.00
B32.4-1977 Preferred Metric Sizes for Round, Square and Hexagon Metal Products, Book No. L00046, L-$2.50, M-$2.00
B32.5-1977 Preferred Metric Sizes for Tubular Metal Products Other Than Pipe, Book No. L00051, L-$2.50, M-$2.00
B32.6-1977 Preferred Metric Equivalents of Inch Sizes for Tubular Metal Products Other Than Pipe, Book No. L00052, L-$2.50, M-$2.00
B36.10-1975 Welded and Seamless Wrought Steel Pipe, Book No. M00031, L-$4.00, M-$3.20
B36.19-1976 Stainless Steel Pipe, Book No. M00013, L-$3.50, M-$2.80
B40.1-1974 Gauges: Pressure and Vacuum, Indicating Dial Type—Elastic Element, Book No. K00015, L-$5.00, M-$4.00
B40.2-1977 Gauges and Indicators: Pressure and Vacuum—Indicating Digital Type, Book No. K00088, L-$7.00, M-$5.60
B46.1-1978 Surface Texture (Surface Roughness, Waviness and Lay - Includes ANSI Y14.36-1978), Book No. M00019, L-$10.00, M-$8.00
B47.1-1974 Gage Blanks, Book No. M00082, L-$20.00, M-$16.00
B56.1-1975 Low Lift and High Lift Trucks, Book No. B00006, L-$6.50, M-$5.20
B56.6-1978 Rough Terrain Fork Lift-Trucks, Book No. J00056, L-$5.50, M-$4.50
B73.1-1977 Specifications for Horizontal, End Suction Centrifugal Pumps for Chemical Process, Book No. J00019, L-$4.50, M-$3.60
B73.2-1975 Specifications for Vertical In-Line Centrifugal Pumps for Chemical Process, Book No. J00049, L-$4.50, M-$3.60
B88.2-1974 Procedure for Bench Calibration of Tank Level Gaging Tapes and Sounding Rules, Book No. L00043, L-$2.75, M-$2.20
B89.1.6-1976 Measurement of Qualified Plain Internal Diameters for Use as Master Rings and Ring Gages, Book No. L00048, L-$6.00, M-$4.80
B89.1.9-1973 Precision Inch Gage Blanks for Length Measurement (Thru 20 inches), Book No. L00044, L-$5.00, M-$4.00
B89.1.10-1978 Dial Indicators (For Linear Measurement), Book No. L00057, L-$4.00, M-$3.20
B89.3.1-1972 Measurement of Out-of-Roundness, Book No. L00020, L-$4.00, M-$3.20
B89.6.2-1973 Temperature and Humidity Environment for Dimensional Measurement, Book No. L00047, L-$6.50, M-$5.20

Cutting Tools, Holders, Drivers, Bushings and Punches

B94.1-1977 Blanks and Semi-Finished Blanks for Solid Carbide Taps, Book No. M00055, L-$5.00, M-$4.00
B94.2-1977 Reamers, Book No. L00028, L-$9.00, M-$7.20
B94.3-1965 (R1972) Straight Cut-Off Blades for Lathes and Screw Machines, Book No. M00056, L-$2.25, M-$1.80
B94.4-1976 Identification System for Indexable Inserts for Cutting Tools, Book No. M00057, L-$3.50, M-$2.80
B94.5-1974 Carbide Blanks and Single-Point Brazed Tools, Book No. N00018, L-$4.00, M-$3.20
B94.6-1966 (R1972) Knurling, Book No. K00022, L-$2.75, M-$2.20
B94.7-1966 (R1972) Hobs, Book No. N00056, L-$3.50, M-$2.80
B94.8-1967 (R1972) Inserted Blade Milling Cutter Bodies, Book No. K00044, L-$2.25, M-$1.80
B94.9-1971 Taps—Cut and Ground Threads, Book No. K00043, L-$6.75, M-$5.40
B94.10-1967 (R1972) High-Speed Steel and Cast Non-Ferrous Single-Point Tools and Tool Holders, Book No. N00034, L-$2.25, M-$1.80
B94.11-1967 (R1972) Twist Drills, Book No. M00027, L-$4.00, M-$3.20
B94.12-1977 Carbide-Tipped Masonry Drills and Blanks for Carbide-Tipped Masonry Drills, Book No. L00013, L-$4.00, M-$3.20
B94.13-1976 Blanks for Carbide Burs, Book No. J00020, L-$4.50, M-$3.60
B94.14-1968 (R1975) Punches—Basic Head Type, Book No. K00052, L-$2.75, M-$2.20
B94.14.1-1977 Punches - Basic Head Type (Metric), Book No. M00092, L-$5.00, M-$4.00
B94.16-1968 (R1975) Retainers—Basic Ball-Lock, Punch and Die Button Light and Heavy Duty, Book No. K00054, L-$2.75, M-$2.20
B94.16.1-1978 Retainers - Plastic Ball-Lock Punch and Die Button, Light and Heavy Duty (Metric), Book No. M00095, L-$4.50, M-$3.60
B94.17-1968 (R1975) Gages—Functional, Ball-Lock Punches, Die Buttons and Retainers, Book No. K00057, L-$2.75, M-$2.20
B94.17.1-1977 Gauges - Functional, Ball-Lock Punches, Dies Buttons and Retainers (Metric), Book No. M00093, L-$3.00, M-$2.40

B94.18-1968 (R1975) Punches—Basic Ball-Lock Light and Heavy Duty, Book No. K00055, L-$3.50, M-$2.80
B94.18.1-1977 Punches—Basic Ball-Lock Light and Heavy Duty (Metric), Book No. M00087, L-$8.00, M-$6.40
B94.19-1977 Milling Cutters and End Mills, Book No. L00008, L-$12.00, M-$9.60
B94.20-1968 Specifications for Carbide Blanks for Twist Drills, Reamers, End Mills, and Random Rod, Book No. K00056, L-$2.75, M-$2.20
B94.21-1968 (R1974) Gear Shaper Cutters, Book No. J00007, L-$4.50, M-$3.60
B94.22-1968 (R1975) Punches—Variable, Head Type, Book No. L00041, L-$4.25, M-$3.40
B94.22.1-1977 Punches—Variable, Head Type, Book No. L00050, L-$7.50, M-$6.00
B94.23-1969 (R1975) Punch Guide Bushings—Variable, Press Fit, Book No. L00040, L-$3.25, M-$2.60
B94.24-76 Heavy Duty Carbide Inserts for Cutting Tools, Book No. L00034, L-$3.50, M-$2.80
B94.25-1975 Indexable Inserts for Cutting Tools, Book No. L00038, L-$14.50, M-$11.60
B94.26-1969 Indexable (Throw-away) Inserts Holders, Book No. L00039, L-$4.75, M-$3.80
B94.27-1970 (R1976) Die Buttons—Basic Taper Relief, Press Fit, Book No. M00041, L-$3.75, M-$3.00
B94.28-1970 (R1976) Die Buttons—Basic Straight Relief, Press Fit, Book No. M00045, L-$3.75, M-$3.00
B94.29-1970 (R1976) Die Buttons—Basic Ball Lock, Book No. M00059, L-$3.75, M-$3.00
B94.29.1-1977 Die Buttons—Basic Ball-Lock (Metric), Book No. M00088, L-$5.00, M-$4.00
B94.30-1970 (R1976) Die Buttons—Variable, Press Fit, Book No. M00060, L-$3.75, M-$3.00
B94.31-1969 (R1976) Steel Rotary Slitting Knives and Steel Spacing Collars, Book No. K00061, L-$2.25, M-$1.80
B94.32-1954 (R1971) Circular & Dove Tailed Forming Tool Blanks (Redesignation of B5.7-1954), Book No. J00025, L-$2.75, M-$2.20
B94.33-1974 Jig Bushings, Book No. K00021, L-$5.25, M-$4.20
B94.34-1946 (R1971) Life Tests of Single Point Tools (Redesignation of B5.19-1946), Book No. L00001, L-$2.25, M-$1.80
B94.35-1972 Drill Drivers, Split-Sleeve, Collet Type, Book No. J00030, L-$2.75, M-$2.20
B94.36-1956 (R1971) Life Tests for Single-Point Tools of Sintered Carbide (Redesignation of B5.34-1956), Book No. M00032, L-$2.25, M-$1.80
B94.37-1972 Carbide Blanks and Cutting Tools, Single-Point, Carbide-Tipped, Roller Turner Type, Book No. M00081, L-$3.50, M-$2.80
B94.38-1972 Punches—Variable, Angle Head Type and Related Quill Bushings, Book No. M00068, L-$3.50, M-$2.80
B94.39-1972 Punches—Basic, Combination Angle Head Type and Related Quill Bushings, Book No. M00069, L-$3.50, M-$2.80
B94.40-1972 Punches—Wire Type, Book No. M00070, L-$2.75, M-$2.20
B94.41-1972 Punches—Basic, Angle Head Type and Related Quill Bushings, Book No. M00071, L-$3.50, M-$2.80
B94.42-1972 Carbide Blanks for Tipping Circular Saws, Book No. M00077, L-$2.25, M-$1.80
B94.43-1972 Die Buttons—Variable, Press Fit, Headless and Head Type, Step Relief, Book No. M00075, L-$2.75, M-$2.20
B94.44-1972 Punches—Basic, Cylindrical Head Type and Related Quill Bushings, Book No. M00076, L-$3.50, M-$2.80
B94.45-1973 Precision Indexable Insert Holders (Includes B94.45a-1975), Book No. M00080, L-$16.00, M-$12.80
B94.45a-1975 Insert Radius Compensation Charts for Precision Indexable Insert Holders, Book No. M00083, L-$3.00, M-$2.40
B94.46-1973 Carbide Seats Used With Indexable Inserts for Clamp Type Holders, Book No. L00007, L-$4.50, M-$3.60
B94.47-1973 Carbide Chip Breakers Used With Indexable Inserts for Clamp Type Holders, Book No. L00029, L-$5.00, M-$4.00
B94.48-1976 Precision Indexable Insert Cartridges, Book No. M00086, L-$4.50, M-$3.60
B94.49-1975 Spade Drill Blades and Spade Drill Holders, Book No. L00035, L-$6.00, M-$4.80
B94.50-1975 Basic Nomenclature and Definitions for Single-Point Cutting Tools, Book No. M00084, L-$7.50, M-$6.00
B94.51-1976 Specifications for Band Saw Blades (Metal Cutting), Book No. M00085, L-$4.50, M-$3.60
B94.52-1977 Hack Saw Blades, Book No. M00091, L-$4.00, M-$3.20
B94.53-1978 Solid Steel Rectangular Metal Cutting Squaring Shear Knives - Dimensional Tolerances, Book No. M00096, L-$3.50, M-$2.80
B95.1-1977 Terminology for Pressure Relief Devices, Book No. M00063, L-$3.50, M-$2.80
B107.2-1975 Socket Wrenches Power Drive (Impact) (Inch Series), Book No. N00013, L-$4.50, M-$3.60
B107.4-1973 Driving and Spindle Ends for Portable Hand, Air, and Electric Tools, Book No. N00023, L-$6.75, M-$5.40
B107.5-1977 Socket Wrenches, Hand (Metric Series), Book No. N00082, L-$4.50, M-$3.60
B107.6-1978 Wrenches, Box, Open End, Combination, and Flare Nut (Inch Series), Book No. N00084, L-$4.50, M-$3.60
B107.7-1978 Wrenches, Splined Socket, Square Drive, High Strength, Thin Wall; Box Wrench, High Strength, Thin Wall (Inch Series), Book No. N00085, L-$4.00, M-$3.20
B107.8-1977 Adjustable Wrenches, Book No. N00083, L-$3.50, M-$2.80

Gas Turbine Procurement

B133.1-1978 Gas Turbine Terminology 1978, Book No. K00093, L-$3.50, M-$2.00
B133.2-1977 Basic Gas Turbine, Book No. K00090, L-$2.50, M-$2.00
B133.4-1978 Gas Turbine Control and Protection Systems, Book No. K00091, L-$3.00, M-$2.40
B133.7-1977 Gas Turbine Fuels, Book No. K00086, L-$4.00, M-$3.20
B133.8-1977 Gas Turbine Installation Sound Emissions, Book No. K00087, L-$4.50, M-$3.60

Food, Drug and Beverage Equipment

ANSI/ASME F2.1-1975 Food, Drug and Beverage Equipment (With Addenda), Book No. A00078, L-$5.00, M-$4.00
ANSI/ASME F2.1a-1976 Addenda to Food, Drug and Beverage Equipment ANSI/ASME F2.1-1975, Book No. A00088, L-$2.00, M-$1.60

Automatic Control and Materials Handling

MC85.1-1963 Terminology for Automatic Control (With 1966 Supplement), Book No. N00036, L-$6.00, M-$4.80
MC85.1a-1966 Supplement only, Book No. N00052, L-$1.75, M-$1.40
MC85.1b-1972 Supplement only, Book No. N00037, L-$1.75, M-$1.40
MH1.1.2-1972 Pallet Definitions and Terminology, Book No. M00073, L-$3.50, M-$2.80
MH1.2.2-1975 Pallet Sizes, Book No. K00082, L-$3.50, M-$2.80
MH1.4.1-1977 Procedures For Testing Pallets, Book No. K00089, L-$5.00, M-$4.80
MH5.3-1970 Specifications for Identification and Marking of Cargo Containers, Book No. K00013, L-$2.75, M-$2.20
MH11.1-1973 Double Race or Bi-Level Swivel and Rigid Industrial Casters, Book No. K00051, L-$2.75, M-$2.20
MH11.3-1973 Load Handling Symbols for Powered Industrial Trucks, Book No. K00073, L-$2.75, M-$2.20
MH11.4-1973 Forks and Fork Carriers for Powered Industrial Forklift Trucks, Book No. K00074, L-$2.75, M-$2.20
MH14.1-1978 Industrial Loading Dockboards (Ramps), Book No. K00092, L-$3.50, M-$2.80

Nuclear Safety

N45.2-1971 Quality Assurance Program Requirements for Nuclear Power Plants, Book No. A00052, L-$4.00, M-$3.20
ANSI/ASME N45.2-1977 Quality Assurance Program Requirements for Nuclear Facilities, Book No. A00090, L-$4.50, M-$3.60
N45.2.1-1973 Cleaning of Fluid Systems and Associated Components During Construction Phase of Nuclear Power Plants, Book No. A00056, L-$4.00, M-$3.20
N45.2.2-1972 Packaging, Shipping, Receiving, Storage and Handling of Items for Nuclear Power Plants (Under Construction Phase), Book No. A00054, L-$4.50, M-$3.60
N45.2.3-1973 Housekeeping During the Construction Phase of Nuclear Power Plants, Book No. A00057, L-$4.00, M-$3.20
N45.2.5-1974 Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Structural Concrete and Structural Steel During the Construction Phase of Nuclear Power Plants, Book No. A00077, L-$4.50, M-$3.60
ANSI/ASME N45.2.5-1978 Supplementary Quality Assurance Requirements for Installation, Inspections, and Testing of Structural Concrete, Structural Steel, Soils and Foundations During the Construction Phase of Nuclear Power Plants, Book No. A00099, L-$5.00, M-$4.00
N45.2.6-1973 Qualifications of Inspection, Examination, and Testing Personnel for the Construction Phase of Nuclear Power Plants, Book No. A00055, L-$4.00, M-$3.20
N45.2.8-1975 Supplementary Quality Assurance Requirements for Installation, Inspection, and Testing of Mechanical Equipment and Systems for the Construction Phase of Nuclear Power Plants, Book No. A00079, L-$4.00, M-$3.20
N45.2.9-1974 Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants, Book No. A00076, L-$4.00, M-$3.20
N45.2.10-1973 Quality Assurance Terms and Definitions, Book No. A00069, L-$3.00, M-$2.40
N45.2.11-1974 Quality Assurance Requirements for the Design of Nuclear Power Plants, Book No. A00072 L-$5.50, M-$4.40
N45.2.12-1977 Requirements for Auditing of Quality Assurance Programs for Nuclear Power Plants, Book No. A00095, L-$3.00, M-$2.40
N45.2.13-1975 Quality Assurance Requirements for Control of Procurement of Items and Services for Nuclear Power Plants, Book No. A00086, L-$5.00, M-$4.00
ANSI/ASME N45.2.23-1978 Qualification of Quality Assurance Program Audit Personnel for Nuclear Power Plants, Book No. A00098, L-$3.50, M-$2.80
N278.1-1975 Self-Operated and Power-Operated Safety-Related Valves Functional Specification Standard, Book No. A00084, L-$3.00, M-$2.40
ANSI/ASME N509-1976 Nuclear Power Plant Air Cleaning Units and Components, Book No. A00085, L-$10.00, M-$8.00
N510-1975 Testing of Nuclear Air-Cleaning Systems, Book No. A00082, L-$5.00, M-$4.00
N626.0-1974 Qualifications and Duties for Authorized Nuclear Inspection, Book No. J00061, L-$3.50, M-$2.80
N626.1-1975 Qualifications and Duties for Authorized Nuclear Inservice Inspection, Book No. J00062, L-$3.00, M-$2.40
ANSI/ASME N626.2-1976 Qualifications and Duties for Authorized Nuclear Inspection (Concrete), Book No. J00063, L-$3.50, M-$2.80
ANSI/ASME N626.3-1978 Qualifications and Duties of Personnel Engaged in ASME Boiler and Pressure Vessel Code, Section III, Division 1 and 2, Certifying Activities, Book No. A00100, L-$3.50, M-$2.80

Offshore Technology

ANSI/ASME OCS-1-1977 Quality Assurance and Certification for Safety and Pollution Prevention Equipment Used in Offshore Oil and Gas Operations (Including Addenda through 1980 Edition), Book No. A00093, L-$15.00, M-$12.00

ANSI/ASME OCS-2-1977 Accreditation of Testing Laboratories for Safety and Pollution Prevention Equipment Used in Offshore Oil and Gas Operations (Including Addenda through 1980 Edition), Book No. A00094, L-$15.00, M-$12.00

Human Occupancy

ANSI/ASME PVHO 1-1977 Safety Standard for Pressure Vessels for Human Occupancy, Book No. A00092, L-$10.00, M-$8.00

Letter Symbols

Y1.1-1972 Abbreviations—For Use on Drawings and in Text, Book No. J00003, L-$12.00, M-$9.60

Y10.1-1972 Glossary of Terms Concerning Letter Symbols, Book No. K00003, L-$2.25, M-$1.80

Y10.2-1958 Letter Symbols for Hydraulics, Book No. K00029, L-$2.25, M-$1.80

Y10.3-1968 Letter Symbols for Quantities Used in Mechanics of Solids, Book No. K00016, L-$3.50, M-$2.80

Y10.4-1957 Letter Symbols for Heat and Thermodynamics, Book No. K00028, L-$2.25, M-$1.80

Y10.6-1968 Letter Symbols for Quantities Used in Electrical Science and Electrical Engineering, Book No. K00045, L-$4.00, M-$3.20

Y10.7-1954 Letter Symbols for Aeronautical Sciences, Book No. K00025, L-$3.50, M-$2.80

Y10.8-1962 Letter Symbols for Structural Analysis, Book No. K00034, L-$2.25, M-$1.80

Y10.10-1953 (R1973) Letter Symbols for Meteorology, Book No. K00031, L-$2.25, M-$1.80

Y10.11-1953 (R1959) Letter Symbols for Acoustics, Book No. K00024, L-$2.25, M-$1.80

Y10.12-1955 (R1973) Letter Symbols for Chemical Engineering, Book No. K00026, L-$2.75, M-$2.20

Y10.14-1959 Letter Symbols for Rocket Propulsion, Book No. K00035, L-$3.50, M-$2.80

Y10.15-1958 (R1973) Letter Symbols for Petroleum Reservoir Engineering and Electric Logging, Book No. N00019, L-$2.75, M-$2.20

Y10.16-1964 (R1973) Letter Symbols for Shell Theory, Book No. M00049, L-$2.25, M-$1.80

Y10.17-1961 (R1973) Guide for Selecting Greek Letters Used as Letter Symbols for Engineering Mathematics, Book No. K00039, L-$2.25, M-$1.80

Y10.18-1967 Letter Symbols for Illuminating Engineering, Book No. K00042, L-$2.25, M-$1.80

Y10.19-1969 Letter Symbols for Units Used in Science and Technology, Book No. K00053, L-$4.50, M-$3.60

Y10.20-1975 Mathematical Signs and Symbols for Use in Physical Sciences and Technology - Includes Y10.20a-1975 Supplement, Book No. K00084, L-$5.00, M-$4.00

Drafting Practices, Charts and Illustrations

Y14 Report Digital Representation of Physical Object Shapes, Book No. N00075, L-$4.00, M-$3.20

Y14 Report, Number 2—Guideline for Documenting and Computer Systems Used in Computer-Aided Preparation of Product Definition Data—User Instructions, Book No. N00078, L-$2.50, M-$2.00

Y14 Report, Number 3—Guideline for Documenting of Computer Systems in Computer-Aided Preparation of Product Definition Data—Design Requirements, Book No. N00079, L-$2.50, M-$2.00

Y14.1-1975 Drawing Sheet Size and Format, Book No. N00001, L-$3.00, M-$2.40

Y14.2-1973 Line Conventions and Lettering, Book No. N00002, L-$4.00, M-$3.20

Y14.3-1975 Multi and Sectional View Drawings, Book No. N00003, L-$4.50, M-$3.60

Y14.4-1975 Pictorial Drawing, Book No. N00004, L-$3.00, M-$2.40

Y14.5-1973 Dimensioning and Tolerancing, Book No. N00005, L-$10.00, M-$8.00

Y14.6-1975 Screw Threads, Book No. N00006, L-$3.00, M-$2.40

Y14.7-1958 Gears, Splines and Serrations, Book No. N00007, L-$3.00, M-$2.40

Y14.7.1-1971 Gear Drawing Standards—Part 1: for Spur Helical Double Helical and Rack, Book No. K00067, L-$3.50, M-$2.80

Y14.7.2-1978 Gear and Spline Drawing Standards-Part 2, Bevel and Hypoid Gears, Book No. N00081, L-$4.50, M-$3.60

Y14.9-1958 Forgings, Book No. N00009, L-$3.00, M-$2.40

Y14.10-1959 Metal Stampings, Book No. N00010, L-$3.00, M-$2.40

Y14.15-1966 (R1973) Electrical and Electronics Diagrams (With 1971 Supplement), Book No. N00015, L-$8.00, M-$6.40

Y14.15a-1971 Interconnection Diagrams, Book No. N00060, L-$1.75, M-$1.40

Y14.15b-1973 Information Sheet on Y14.15-1966 (R1973), Book No. N00016, L-$1.25, M-$1.00

Y14.17-1966 (R1974) Fluid Power Diagrams, Book No. N00017, L-$4.00, M-$3.20

Y14.26.3-1975 Dictionary of Terms for Computer-Aided Preparation of Product Definition Data (Including Engineering Drawings), Book No. N00012, L-$3.50, M-$2.80

Y14.32.1-1974 Chassis Frames—Passenger Car and Light Truck—Ground Vehicle Practices, Book No. N00008, L-$4.00, M-$3.20

Y14.36-1978 Surface Texture Symbols, Book No. N00080, L-$3.00, M-$2.40

Y15.1-1959 Illustrations for Publication and Projection, Book No. K00010, L-$2.75, M-$2.20

Y15.2-1960 Time Series Charts, Book No. M00023, L-$6.50, M-$5.20

Y15.3-1974 ASME Standard 101. Operation and Flow Process Charts 1972, Book No. L00017, L-$4.00, M-$3.20

Graphic Symbols

Y32.2-1975 Graphic Symbols for Electrical and Electronic Diagrams, Book No. K00041, L-$8.00, M-$6.40

Y32.4-1977 Graphic Symbols for Plumbing Fixtures for Diagrams Used in Architecture and Building Construction, Book No. K00007, L-$4.00, M-$3.20

Y32.7-1972 Graphic Symbols for Railroad Maps and Profiles, Book No. K00008, L-$4.50, M-$3.60

Y32.10-1967 (R1974) Graphic Symbols for Fluid Power Diagrams, Book No. N00022, L-$4.00, M-$3.20

Y32.11-1961 Graphical Symbols for Process Flow Diagrams in Petroleum and Chemistry Industries, Book No. K00040, L-$2.25, M-$1.80

Y32.12-1960 (R1973) Metalizing Symbols, Book No. K00036, L-$2.25, M-$1.80

Y32.18-1972 Symbols for Mechanical and Acoustical Elements as Used in Schematic Diagrams, Book No. K00011, L-$3.50, M-$2.80

Z32.2.3-1949 (R1953) Graphical Symbols for Pipe Fittings, Valves, and Piping, Book No. K00006, L-$2.25, M-$1.80

Z32.2.4-1969 (R1953) Graphical Symbols for Heating, Ventilating and Air Conditioning, Book No. K00005, L-$2.25, M-$1.80

Z32.2.6-1950 (R1956) Graphical Symbols for Heat-Power Apparatus, Book No. K00004, L-$2.25, M-$1.80

Z94 Series - Industrial Engineering Technology

Z94.1-1972 Biomechanics, Book No. N00061, L-$4.00, M-$3.20

Z94.2-1972 Cost Engineering, Book No. N00062, L-$2.75, M-$2.20

Z94.3-1972 Data Processing and Systems Design, Book No. N00063, L-$5.00, M-$4.00

Z94.4-1972 Distribution and Marketing, Book No. N00064, L-$2.75, M-$2.20

Z94.5-1972 Engineering Economy, Book No. N00065, L-$3.50, M-$2.80

Z94.6-1972 Facility Planning, Book No. N00066, L-$5.00, M-$4.00

Z94.7-1972 Materials Processing, Book No. N00067, L-$9.00, M-$7.20

Z94.8-1972 Applied Mathematics, Book No. N00068, L-$9.00, M-$7.20

Z94.9-1972 Organization Planning and Theory, Book No. N00069, L-$2.75, M-$2.20

Z94.10-1972 Production Planning and Control, Book No. N00070, L-$4.00, M-$3.20

Z94.11-1972 Applied Psychology, Book No. N00071, L-$5.00, M-$4.00

Z94.12-1972 Work Measurements and Methods, Book No. N00072, L-$3.50, M-$2.80

1972 Index To Z94 Industrial Engineering Terminology, Book No. N00073, L-$11.00, M-$8.80

Z223.1-1974 National Fuel Gas Code, Book No. N00074, L-$3.00, M-$2.40

1977 ASME Boiler and Pressure Vessel Code

Available in both Bound (see book numbers beginning with R) and Loose-Leaf (see book numbers beginning with W) editions. Prices include automatic addenda service up to the 1980 edition.

Section I Power Boilers, Book No. R00010, L-$45.00, M-$36.00; Book No. W00010, L-$65.00, M-$52.00

Section II Material Specifications

- Part A—Ferrous Materials, Book No. R0002A, L-$95.00, M-$76.00, Book No. W0002A, L-$140.00, M-$112.00
- Bart B—Nonferrous Materials, Book No. R0002B, L-$95.00, M-$76.00, Book No. W0002B, L-$140.00, M-$112.00
- Part C—Welding Rods, Electrodes and Filler Metals, Book No. R0002C, L-$35.00, M-$28.00, Book No. W0002C, L-$50.00, M-$40.00

Section III Division 1 and 2

- Subsection NCA-Nuclear Power Plant Components: General Requirements, Book No. R0003R, L-$45.00, M-$36.00, Book No. W0003R, L-$70.00, M-$56.00

Section III Division 1

- Subsection NB-Class 1 Components, Book No. R0003B, L-$60.00, M-$48.00, Book No. W0003B, L-$90.00, M-$72.00
- Subsection NC-Class 2 Components, Book No. R0003C, L-$60.00, M-$48.00, Book No. W0003C, L-$90.00, M-$72.00
- Subsection ND-Class 3 Components, Book No. R0003D, L-$60.00, M-$48.00, Book No. W0003D, L-$90.00, M-$72.00
- Subsection NE-Class MC Components, Book No. R0003E, L-$50.00, M-$48.00, Book No. W0003E, L-$90.00, M-$72.00
- Subsection NF-Component Supports, Book No. R0003R, L-$35.00, M-$28.00, Book No. W0003F, L-$45.00, M-$36.00
- Subsection NG-Core Support Structures, Book No. R0003G, L-$45.00, M-$36.00, Book No. W0003G, L-$75.00, M-$60.00
- Appendices, Book No. R0003A, L-$75.00, M-$60.00, Book No. W0003A, L-$100.00, M-$80.00

Section III Division 2—Code for Concrete Reactor Vessels and Containments, Book No. R00032, L-$80.00, M-$64.00, Book No. W00032, L-$110.00, M-$88.00

Section IV Heating Boilers, Book No. R00040, L-$55.00, M-$44.00, Book No. W00040, L-$80.00, M-$64.00

Section V Nondestructive Examination, Book No. R00050, L-$60.00, M-$48.00, Book No. W00050, L-$80.00, M-$64.00

Section VI Recommended Rules for Care and Operation of Heating Boilers, Book No. R00060, L-$25.00, M-$20.00, Book No. W00060, L-$30.00, M-$24.00
Section VII Recommended Rules for Care of Power Boilers, Book No. R00070, L-$25.00, M-$20.00, Book No. W00070, L-$30.00, M-$24.00
Section VIII Pressure Vessels
Division 1, Book No. R00081, L-$85.00, M-$68.00, Book No. W00081, L-$125.00, M-$100.00
Division 2-Alternative Rules, Book No. R00082, L-$85.00, M-$68.00, Book No. W00082, L-$125.00, M-$100.00
Section IX Welding and Brazing Qualifications, Book No. R00090, L-$45.00, M-$36.00, Book No. W00090, L-$65.00, M-$52.00
Section X Fiberglass-Reinforced Plastic Pressure Vessels, Book No. R00100, L-$40.00, M-$32.00, Book No. W00100, L-$60.00, M-$48.00
Section XI Rules for Inservice Inspection of Nuclear Power Plant Components: Division 1, Book No. R00111, L-$60.00, M-$48.00, Book No. W00111, L-$90.00, M-$72.00
Code Case Books (Loose-Leaf Edition Only)
Nuclear Components, Book No. W0012N, L-$100.00, M-$80.00
Boilers and Pressure Vessels, Book No. W00120, L-$70.00, M-$56.00
Complete Code (Special offer for all of the above), Book No. R00230, L-$1,300.00, M-$1,040.00, Book No. W00230, L-$1,850.00, M-$1,480.00
Binder for Loose-Leaf Edition (2-inch capacity), Book No. W00140, L-$14.00, M-$11.20

Data Report Forms

Data Report Forms, samples of which are shown in the various Sections of the ASME Boiler and Pressure Vessel Code, may be obtained from the ASME Order Department in pads of 100 sheets each at a cost of $6.00 per pad. Please order by Book Number which follows each title. No member discount.
A1 Manufacturers' Data Report for Pressure Vessels (**E00112**)
A-2 Manufacturers' Partial Data Report (A Part of a Pressure Vessel Fabricated by One Manufacturer for Another Manufacturer) (**E00114**)
A-3 Manufacturers' Data Report Supplementary Sheet (**E00119**)
C-1 Constructors' Data Report for Concrete Reactor Vessels and Containments (**E00077**)
C-2 Fabricators' Data Report for Parts of Concrete Reactor Vessels and Containments as Required by the Provisions of the ASME Code, Section III, Division 2 (**E00081**)
H-2 Manufacturers' Data Report for All Types of Boilers Except Water-Tube and Those Made of Cast Iron (**E00101**)
H-3 Manufacturers' Data Report for Water-Tube Boilers (**E00102**)
H-4 Manufacturers' Partial Data Report (**E00103**)
H-5 Manufacturers' Master Data Report for Boilers Constructed from Cast Iron (**E00041**)
HLW-6 Manufacturers' Report for Lined Water Heaters (**E00105**)
HLW-7 Manufacturers' Partial Data Report for Lined Water Heaters (**E00106**)
HLW-8 Manufacturers' Master Data Proof Test Report for Lined Water Heaters (**E00107**)
N-1 Manufacturers' Data Report for Nuclear Vessels (**E00038**)
N-1A Manufacturers' Data Report for Nuclear Vessels (Alternate Form for Single Chamber Completely Shop-Fabricated Vessels Only) (**E00039**)
N-2 Manufacturers' Data Report for Nuclear Part and Appurtenances (**E00040**)
N-3 Owners' Data Report for Nuclear Power Plant Components (**E00024**)
N-5 Data Report for Field Installation of Nuclear Power Plant Components, Component Supports, and Appurtenances (**E00025**)
N-6 Manufacturers' Data Report for Storage Tanks (**E00054**)
N-7 Manufacturers' Data Report for Storage Tank Parts and Appurtenances (**E00055**)
NCS-1 Designers' Data Report for Core Support Structures-Fabricated by Others (**E00065**)
NCS-2 Manufacturers' Data Report for Core Support Structures (**E00067**)
NF-1 Manufacturers' Data Report for Component Supports (**E00075**)
NF-2 Manufacturers' Partial Data Report for Parts for Component Support (**E00076**)
NIS-1 Owners' Data Report for Inservice Inspection (**E00029**)
NM-1 Data Report for Tubular Products and Fittings Welded with Filler Metal (**E00080**)
NPP-1 Fabricated Nuclear Piping (**E00062**)
NPV-1 Manufacturers' Data Report for Nuclear Pumps or Valves (**E00037**)
NR-1 Manufacturers' Data Report of Rupture Discs (**E00026**)
NV-1 Manufacturers' Data Report for Safety and Safety Relief Valves (**E00042**)
P-2 Manufacturers' Data Report for All Types of Boilers Except Water Tube (**E00068**)
P-2A Manufacturers' Data Report for All Types Electric Boilers (**E00120**)
P-3 Manufacturers' Data Report for Water-tube Boilers, Super-heaters, Waterwalls, and Economizers (**E00069**)
P-3A Engineering - Contractor Data Report for a Complete Boiler Unit (**E00070**)
P-4 Manufacturers' Partial Data Report (**E00071**)
P-4A Manufacturers' Data Report for Fabricated Piping (**E00072**)
P-5 Summary Data Report for Process Steam Generators (**E00073**)
P-6 Manufacturers' Data Report Supplementary Sheet (**E00074**)
QB-482 Recommended Form-Procedure Specification Applying to Ferrous and Nonferrous Materials and All Brazing Processes (**E00031**)
QB-483 Recommended Form-Manufacturers' Record of Brazing Procedure Qualification Tests (**E00032**)
QB-484 Recommended Form-Performance Specification and Manufacturers' Record of Brazer Qualification Test (**E00033**)
QW-482 Welding Procedure Specification (WPS) (**E00006**)
QW-483 Procedure Qualification Record (PQR) (**E00007**)
QW-484 Manufacturers' Record of Welder or Welding Operator Qualification Tests (**E00008**)
RP-1 Manufacturers' Data Report for Fiberglass-Reinforced Plastic Pressure Vessels (**E00115**)
RP-2 Manufacturers' Partial Data Report (**E00116**)
U-1 Manufacturers' Data Report for Pressure Vessels (**E00108**)
U-1A Manufacturers' Data Report for Pressure Vessels (Alternate Form for Single Chamber Completely Shop-Fabricated Vessels Only) (**E00117**)
U-2 Manufacturers' Partial Data Report (A Part of a Pressure Vessel Fabricated by One Manufacturer for Another) (**E00110**)
U-3 Manufacturers' Certificate of Compliance Covering Pressure Vessels to be Stamped with the UM-Symbol (**E00111**)
U-4 Manufacturers' Data Report Supplementary Sheet (**E00118**)

Other Titles of Interest to Boiler and Pressure Vessel Code Users

Companies Holding Boiler and Pressure Vessel Certificates of Authorization for Use of Code Symbol Stamps—1978 Edition (With Winter 1978 Supplement), Book No. E00052, L-$35.00, M-$28.00
Companies Holding Nuclear Certificates of Authorization (One Year Subscription-Issued bimonthly), Book No. E00061, L-$45.00, M-$36.00
Criteria for Design of Elevated Temperature Class 1 Components in Section III, Division 1, of the ASME Boiler and Pressure Vessel Code, 1976, Book No. E00097, L-$20.00, M-$16.00
Criteria of the ASME Boiler & Pressure Vessel Code for Design by Analysis Sections III & VIII, Div. 2, 1969, Book No. I00059, L-$1.50, M-$1.20
History of the ASME Boiler Code, 1955, Book No. G00028, L-$10.00, M-$8.00
Interpretations of the ASME Boiler and Pressure Code, Book No. E00098, Annual Subscription (2 issues) L-$30.00, M-$24.00, Special 3 Year Subscription (6 issues) L-$75.00, M-$60.00
Proposed Section XI—Division 2, Rules for Inspection and Testing of Components of Gas-Cooled Plants, Book No. E00122, L-$30.00, M-$24.00
Proposed Section XI—Division 3, Rules for Inspection and Testing of Components of Liquid Metal Cooled Plants, Book No. E00123, L-$15.00, M-$12.00
Proposed Standard for Acoustic Emisson Examinations During Application of Pressure, 1975, Book No. E00096, L-$2.50, M-$2.00
Sample Analysis of a Piping System: Class 1 Nuclear, 1972, Book No. E00063, L-$4.50, M-$3.60

ASME CODES

Performance Test Codes

Test methods prescribed in the PTC's enable users to obtain accurate information on adaptability of equipment, best methods of operation, capacity and efficiency, and verification of manufacturer's guarantees. Each one contains a check list of items on which agreement should be reached before starting tests, specifies the instruments and testing apparatus needed, lists precautions, gives instructions for computing and tabulating results and shows how to correct results for deviations from specified test conditions.

The Performance Test Codes Committee is following a policy of submitting the PTC Documents to ANSI for approval as American National Standards. The documents that have been approved bear the ANSI/ASME designation. This PTC/ANSI relationship will reduce duplication of effort and promote the consensus standards concept.

ANSI	ASME	
PTC 1-1974	PTC 1-1970	General Instructions (With 1971 Addenda), Book No. C00017, L-$5.00, M-$4.00
PTC 2-1974	PTC 2-1971	Code on Definitions and Values, Book No. C00007, L-$5.50, M-$4.40
PTC 3.1-1974	PTC 3.1-1958	(R 1970) Diesel and Burner Fuels, Book No. D00024, L-$10.00, M-$8.00
PTC 3.2-1974	PTC 3.2-1954	(R 1970) Solid Fuels, Book No. C00023, L-$5.50, M-$4.40
PTC 3.3-1974	PTC 3.3-1969	Gaseous Fuels, Book No. D00038, L-$9.00, M-$7.20
PTC 4.1-1974	PTC 4.1-1964	(R 1973) Steam-Generating Units (With 1968 and 1969 Addenda), Book No. C00025, L-$10.00, M-$8.00
		Diagram for Testing of a Steam Generator, Figure 1 (Pad of 100), Book No. C00038, L-$6.00, M-$6.00
		Heat Balance of a Steam Generator, Figure 2 (Pad of 100), Book No. C00039, L-$6.00, M-$6.00
	PTC 4.1a-1964	ASME Test Form for Abbreviated Efficiency Test—Summary Sheet (Pad of 100), Book No. C00036, L-$6.00, M-$6.00
	PTC 4.1b-1964	(R 1965) ASME Test Form for Abbreviated Efficiency Test—Calculation Sheet (Pad of 100), Book No. C00037, L-$6.00, M-$6.00
PTC 4.2-1974	PTC 4.2-1969	Coal Pulverizers, Book No. C00006, L-$4.50, M-$3.60
PTC 4.3-1974	PTC 4.3-1968	Air Heaters, Book No. D00034, L-$7.00, M-$5.60

ANSI	ASME	
	PTC 5-1949	Reciprocating Steam Engines, Book No. C00022, L-$2.75, M-$2.20
PTC 6-1976	PTC 6-1976	Steam Turbines, Book No. C00028, L-$15.00, M-$12.00
Appendix to ANSI PTC 6-1974	PTC 6A-1964	(R 1973) Appendix A to Test Code for Steam Turbines (With 1968 Addenda), Book No. C00029, L-$6.50, M-$5.20
PTC 6 Report-1974	PTC 6 Report-1969	(R 1973) Guidance for Evaluation of Measurement Uncertainty in Performance Tests of Steam Turbines, Book No. D00041, L-$5.00, M-$4.00
PTC 6S Report-1974	PTC 6S Report-1970	(R 1973) Simplified Procedures for Routine Performance Tests of Steam Turbines, Book No. D00042, L-$11.00, M-$8.80
	PTC 7-1949	(R 1969) Reciprocating Steam-Driven Displacement Pumps, Book No. C00021, L-$2.50, M-$2.00
	PTC 7.1-1962	(R 1969) Displacement Pumps, Book No. D00026, L-$4.00, M-$3.20
	PTC 8.2-1965	Centrifugal Pumps (With 1973 Addenda), Book No. C00005, L-$5.00, M-$4.00
	1973 Addendum to PTC 8.2-1965	Centrifugal Pumps, Book No. C00002, L-$1.25, M-$1.00
PTC 9-1974	PTC 9-1970	Displacement Compressors, Vacuum Pumps and Blowers (With 1972 Errata, Book No. C00009, L-$8.00, M-$6.40
PTC 10-1974	PTC 10-1965	(R 1973) Compressors and Exhausters, Book No. C00004, L-$8.00, M-$6.40
PTC 12.1-1978	PTC 12.1-1978	Closed Feedwater Heaters, Book No. C00013, L-$7.50, M-$5.60
PTC 12.2-1975	PTC 12.2-1955	(R 1975) Steam Condensing Apparatus, Book No. C00026, L-$8.00, M-$6.40
PTC 12.3-1977	PTC 12.3-1977	Deaerators, Book No. D00023, L-$10.00, M-$8.00
PTC 14-1974	PTC 14-1970	Evaporating Apparatus, Book No. C00011, L-$5.00, M-$4.00
PTC 16-1974	PTC 16-1958	(R 1971) Gas Producers and Continuous Gas Generators, Book No. C00014, L-$5.50, M-$4.40
PTC 17-1974	PTC 17-1973	Reciprocating Internal-Combustion Engines, Book No. C00020, L-$7.50, M-$6.00
	PTC 18-1949	Hydraulic Prime Movers, Book No. C00018, L-$5.00, M-$4.00
PTC 18.1-1978	PTC 18.1-1978	Pumping Mode of Pump Turbines, Book No. C00044, L-$15.00, M-$12.00
PTC 20.1-1977	PTC 20.1-1977	Speed and Load-Governing Systems for Steam Turbine-Generator Units, Book No. C00019, L-$12.00, M-$9.60
	PTC 20.2-1965	Overspeed Trip Systems for Steam Turbine-Generator Units, Book No. C00041, L-$5.00, M-$4.00
PTC 20.3-1974	PTC 20.3-1970	Pressure Control Systems Used on Steam Turbine Generator Units, Book No. C00027, L-$9.00, M-$7.20
	PTC 21-1941	Dust Separating Apparatus, Book No. D00021, L-$4.00, M-$3.20
PTC 22-1974	PTC 22-1966	(R 1973) Gas Turbine Power Plants Book No. C00015, L-$8.00, M-$6.40
	PTC 23-1958	Atmospheric Water Cooling Equipment, Book No. D00022, L-$6.00, M-$4.80
PTC 24-1976	PTC 24-1976	Ejectors, Book No. C00010, L-$7.50, M-$6.00
PTC 25.3-1976	PTC 25.3-1976	Safety and Relief Valves, Book No. D00031, L-$12.00, M-$9.60
		1977 Addendum to ANSI/ASME PTC 25.3-1976 Safety and Relief Valves, Book No. D00032, L-$1.00, M-$.80
	PTC 26-1962	Speed Governing Systems for Internal Combustion Engine-Generator Units, Book No. D00027, L-$4.00, M-$3.20
	PTC 27-1957	Determining Dust Concentration in a Gas Stream, Book No. C00008, L-$5.00, M-$4.00
PTC 28-1974	PTC 28-1965	(R 1973) Determining the Properties of Fine Particulate Matter, Book No. D00030, L-$6.00, M-$4.80
	PTC 29-1965	Speed-Governing Systems for Hydraulic Turbine-Generator Units, Book No. C00040, L-$5.75, M-$4.60
PTC 31-1974	PTC 31-1973	Ion Exchange Equipment, Book No. C00016, L-$6.00, M-$4.80
PTC 32.1-1974	PTC 32.1-1969	Nuclear Steam Supply Systems, Book No. C00012, L-$6.50, M-$5.20
	PTC 34 Draft	Draft ASME Code for In-Service Testing of Valves in Nuclear Power Plants, Book No. C00043, L-$4.50, M-$3.60
	PTC 35 Draft (April 1970)	Draft ASME Code for In-Service Testing of Pumps in Nuclear Power Plants, Book No. C00042, L-$2.75, M-$2.20

PTC Supplements on Instruments and Apparatus

	PTC 19.2-1964	Pressure Measurement, Book No. D00029, L-$9.00, M-$7.20
PTC 19.3-1974	PTC 19.3-1974	Temperature Measurement, Book No. C00035, L-$16.00, M-$12.80
	PTC 19.5-1972	Application, Part II of Fluid Meters: Interim Supplement on Instruments and Apparatus, Book No. G00018, L-$14.00, M-$11.20
	PTC 19.5.1-1964	Weighing Scales, Book No. D00028, L-$3.75, M-$3.00
	PTC 19.6-1955	Electrical Measurements in Power Circuits, Book No. D00007, L-$7.00, M-$5.60
	PTC 19.7-1961	Measurement of Shaft Horsepower, Book No. D00009, L-$5.00, M-$4.00
PTC 19.8-1974	PTC 19.8-1970	Measurement of Indicated Horsepower, Book No. D00008, L-$5.50, M-$4.40
PTC 19.10-1974	PTC 19.10-1968	Flue and Exhaust Gas Analyses, Book No. C00031, L-$5.50, M-$4.40
PTC 19.11-1974	PTC 19.11-1970	Water and Steam in the Power Cycle (Purity and Quality, Leak Detection and Measurement), Book No. D00011, L-$9.00, M-$7.20
	PTC 19.12-1958	Measurement of Time, Book No. D00012, L-$2.75, M-$2.20

ANSI	ASME	
	PTC 19.13-1961	Measurement of Rotary Speed, Book No. D00013, L-$4.00, M-$3.20
	PTC 19.14-1958	Linear Measurements, Book No. D00014, L-$3.50, M-$2.80
	PTC 19.16-1965	Density Determinations of Solids and Liquids, Book No. D00016, L-$3.75, M-$3.00
	PTC 19.17-1965	Determination of the Viscosity of Liquids, Book No. D00017, L-$4.00, M-$3.20
	(Not a PTC)	The Philosophy of Power Test Codes and Their Development, Book No. I00056, L-$2.50, M-$2.00
		Binders for Performance Test Codes —Blue cloth, 8-1/2 × 11 with rods, Book No. C00003, L-$7.50, M-$6.00

ASME Standards

No. 101 Operation and Flow Process Charts 1972, Book No. L00017, L-$4.00, M-$3.20

No. 102 Form for Use in Self-Appraisal of Industrial Plants 1947, Book No. M00001, L-$2.75, M-$2.20

No. 104 One-Piece Metallic Piston Rings 1954, Book No. L00016, L-$2.25, M-$1.80

No. 111 Recommended Practices for the Design of Marine Propulsion Turbine Lubricating Systems 1960, Book No. J00036, L-$2.25, M-$1.80

No. 112 Diaphragm Actuated Control Valve Terminology 1961, Book No. L00036, L-$2.25, M-$1.80

No. 113 Recommended Practices for the Flushing and Cleaning of Marine Propulsion Turbine Lubricating Systems 1964, Book No. M00051, L-$2.25, M-$1.80

No. 114 Recommended Practices for the Purification of Marine Propulsion Turbine Lubricating Oil 1964, Book No. M00052, L-$2.25, M-$1.80

No. 115 Recommended Practices for the Design, Operation and Maintenance of Marine Auxiliary Machinery Lubricating Systems 1968 (Includes ASME Standards No. 115A (Design Section only) Recommended Practices for the Design of Steam Turbine Driven Generator Lubricating Systems; 115B Recommended Practices for the Design of Marine Steam Turbine Driven Boiler Feed Pumps Lubricating Systems; 115C Recommended Practices for the Design of Marine Steam Turbine Driven Blowers Lubricating Systems), Book No. K00046, L-$4.00, M-$3.20

No. 115D Recommended Practices or the Design of Lubricating Systems for Marine Steam Turbine Pumps for Various Ships Services 1969, Book No. K00059, L-$2.75, M-$2.20

No. 116 Recommended Practices for the Design of Steam Turbine Generator Oil Systems 1968, Book No. K00047, L-$2.75, M-$2.20

No. 117 Recommended Practices for the Cleaning of Steam Turbine Generator Oil Systems 1968, Book No. K00048, L-$2.75, M-$2.20

No. 118 Recommended Practices for the Purification of Steam Turbine Generator Oil 1968, Book No. K00049, L-$2.75, M-$2.20

No. 119 Recommended Practices for the Flushing and Cleaning of Marine Auxiliary Machinery Lubricating Systems 1968, Book No. K00050, L-$2.75, M-$2.20

No. 120 Recommended Practices for the Design of Gas Turbine Generator Lubricating Oil Systems 1969, Book No. K00058, L-$2.75, M-$2.20

No. 121 Recommended Practices for the Purification of Lubricating Oil in Marine Steam Turbine Driven Auxiliary Machinery 1969, Book No. K00060, L-$2.75, M-$2.20

CSD-1 ASME Safety Code-Controls and Safety Devices for Automatically Fired Boilers, Book No. A00091, L-$7.50, M-$6.00

LOS-2C1 ASTM-ASME Recommended Practices for the Flushing and Cleaning of Lubricating Systems of Various Turbine Driven Pumps for Marine Service, Book No. K00062, L-$3.50, M-$2.80

LOS-4C1 ASTM-ASME Recommended Practices for Flushing and Cleaning of Gas Turbine Generator Lubricating Oil Systems, Book No K00063, L-$3.50, M-$2.80

LOS-5C1 ASTM-ASME Recommended Practices for the Flushing and Cleaning of Oil Systems for Lubrication and Control of Hydroelectric Equipment, Book No. K00065, L-$3.50, M-$2.80

LOS-5D1 ASTM-ASME Recommended Practices for the Design of Oil Systems for Lubrication and Control of Hydroelectric Equipment, Book No. K00068, L-$3.50, M-$2.80

LOS-5P1 ASTM-ASME Recommended Practice for the Purification of Oil Systems for Lubrication and Control of Hydroelectric Equipment, Book No. K00064, L-$3.50, M-$2.80

TWDPS-1 Recommended Practices for the Prevention of Water Damage to Steam Turbines Used for Electric Power Generation: Part I—Fossil Fueled Plants 1972, Book No. K00066, L-$4.00, M-$3.20

TWDPS-1 Recommended Practices for the Prevention of Water Damage to Steam Turbines Used for Electric Power Generation: Part II—Nuclear Fueled Plants 1973, Book No. K00072, L-$4.00, M-$3.20

—— Draft ASME Code for Pumps and Valves for Nuclear Power 1968 (With 1970 Addenda), Book No. N00047, L-$5.50, M-$4.40
Addenda only, Book No. N00050, L-$2.25, M-$1.80

—— ASME Guide for Gas Transmission and Distribution Piping Systems—1976 (Including all Addenda through December 1978), Book No. A00030, L-$100.00, M-$80.00

—— Binder for Gas Guide, Book No. A00028, L-$7.50, M-$6.00

BOOKS AND REPORTS

Aerospace

Annals of Reliability and Maintainability, Book No. H00025, L-$25.00, M-$12.50

Integrated Design and Analysis of Aerospace Structures, Book No. G00096, L-$12.00, M-$6.00

Measurement and Prediction of Structural and Biodynamic Crash-Impact Response, Book No. G00107, L-$10.00, M-$10.00

The 1978 Proceedings Annual Reliability and Maintainability Symposium, Book No. I00117, L-$18.00, M-$6.00

1968 Reliability and Maintainability Conference Proceedings - "Annals of Assurance Sciences," Book No. I00053, L-$27.00, M-$13.50

Reliability and Maintainability (Reprinted From Mechanical Engineering), Book No. H00054, L-$2.00, M-$1.00

Space Systems and Thermal Technology for the 70's Aviation & Space Papers - Part I, Book No. I00073, L-$45.00, M-$22.50

Structural Dynamic Aspects of Bladed-Disk Assemblies, Book No. H00098, L-$14.00, M-$7.00

Air Pollution

Ambient Air Quality Standards - Here We Are, What Do We Do?, Book No. I00099, L-$30.00, M-$15.00

Cooling Tower Plume Modeling and Drift Measurement - A Review of the State-of-the-Art, Book No. H00088, L-$25.00, M-$12.50

Recommended Guide for the Prediction of the Dispersion of Airborne Effluents - Second Edition, Book No. H00037, L-$6.00, M-$3.00

Applied Mechanics

Applications of Holography in Mechanics, Book No. H00040, L-$7.50, M-$3.75

Applications of Numerical Methods to Forming Processes, - AMD Vol. 28, Book No. H00111, L-$30.00, M-$15.00

Applied Mechanics Aspects of Nuclear Effects in Materials, Book No. H00073, L-$20.00, M-$10.00

Applied Mechanics in Earthquake Engineering - AMD Vol. 8, Book No. I00020, L-$22.00, M-$11.00

Biomechanics Symposium - AMD Vol. 2, Book No. G00033, L-$12.00, M-$6.00

1975 Biomechanics Symposium - AMD Vol. 10, Book No. I00090, L-$16.00, M-$8.00

Proceedings of the U.S. National Congress of Applied Mechanics
7th Edition—1974, Book No. G00085, L-$25.00, M-$12.50
6th Edition—1970, Book No. G00078, L-$12.50, M-$6.25
4th Edition—1962, Book No. H00024, L-$44.00, M-$22.00

Propagation of Shock Waves in Solids - AMD Vol. 17, Book No. I00102, L-$16.00, M-$8.00

Reliability Design for Vibroacoustic Environment - AMD Vol. 9, Book No. I00047, L-$18.00, M-$9.00

Rock Mechanics Symposium - AMD Vol. 3, Book No. I00012, L-$12.50, M-$6.25

Structural Optimizations Symposium - AMD Vol. 7, Book No. I00042, L-$18.00, M-$9.00

Surface Crack: Physical Problems and Computational Solutions, Book No. H00029, L-$20.00, M-$10.00

Surface Mechanics, Book No. G00013, L-$13.00, M-$6.50

Surveys of Research in Transportation Technology - AMD Vol. 5, Book No. H00006, L-$18.00, M-$9.00

Synthesis of Vibrating Systems, Book No. H00072, L-$15.00, M-$7.50

System Identification of Vibrating Structures: Mathematical Models from Test Data, Book No. I00005, L-$20.00, M-$10.00

Use of Models and Scaling in Shock and Vibration, Book No. I00010, L-$7.00, M-$3.50

Vibration Testing - Instrumentation and Data Analysis - AMD Vol. 12, Book No. I00091, L-$14.00, M-$7.00

Wave Propagation in Solids, Book No. G00006, L-$13.50, M-$6.75

Bioengineering

1974 Advances in Bioengineering, Book No. H00077, L-$18.00, M-$9.00

1975 Advances in Bioengineering, Book No. G00097, L-$12.00, M-$6.00

1976 Advances in Bioengineering, Book No. G00105, L-$7.00, M-$3.50

1977 Advances in Bioengineering, Book No. H00103, L-$16.00, M-$8.00

1978 Advances in Bioengineering, Book No. H00114, L-$20.00, M-$10.00

1967 Biomechanical Human Factors, Book No. G00050, L-$9.50, M-$4.75

Biomechanics, Book No. H00061, L-$10.50, M-$5.25

Computer Technology

Case Studies in Computer Control, Book No. H00117, L-$18.00, M-$9.00

Computer Aided Design of Bearing and Seals, Book No. G00108, L-$10.00, M-$5.00

Interactive Computer Graphics in Engineering, Book No. G00118, L-$8.00, M-$4.00

Numerical/Laboratory Computer Methods in Fluid Mechanics, Book No. G00106, L-$35.00, M-$17.50

Controls

Control of Distributed Parameter Systems, Book No. G00032, L-$5.00, M-$2.50

Differential Games: Theory and Applications, Book No. G00066, L-$6.00, M-$3.00

Dynamics of Automatic Controls, Book No. G00014, L-$7.00, M-$3.50

Identification of Parameters in Distributed Systems, Book No. I00019, L-$7.00, M-$3.50

1970 Joint Automatic Control Conference, Book No. I00069, L-$30.00, M-$15.00

1976 Joint Automatic Control Conference - Productivity, Book No. I00103, L-$50.00, M-$50.00

Learning Systems, Book No. G00065, L-$6.00, M-$3.00

Nonlinear Analysis and Synthesis: Vol. 1, Fundamental Principles, Book No. G00138, L-$15.00, M-$7.50

Singular Perturbations: Order Reduction in Control System Design, Book No. G00070, L-$4.50, M-$2.25

Stochastic Problems in Control, Book No. I00038, L-$6.00, M-$3.00

Stochastic Processes in Dynamical Problems, Book No. G00016, L-$13.00, M-$6.50

Design

Composite Materials in the Automobile Industry, Book No. H00115, L-$30.00, M-$15.00

Design Engineering Conference, 1960, Book No. I00035, L-$6.00, M-$3.00

Design for Elevated Temperature Environment, 1971, Book No. G00035, L-$7.50, M-$3.75

Design Technology Transfer, 1974, Book No. H00017, L-$40.00, M-$20.00

Designing for High Impact Technology, 1967, Book No. G00048, L-$3.50, M-$1.75

Failure Prevention and Reliability, 1977, Book No. H00101, L-$30.00, M-$15.00

Finite Element Applications in Vibration Problems, 1977, Book No. H00102, L-$16.00, M-$8.00

Flexible Rotor-Bearing System Dynamics:
Part I—Critical Speeds and Response of Flexible Rotor Systems, 1972, Book No. H00042, L-$5.00, M-$2.50
Part II—Bearing Influence and Representation in Rotor Dynamics Analysis, 1972, Book No. H00046, L-$3.50, M-$1.75
Part III—Unbalance Response and Balancing of Flexible Rotors in Bearing, 1973, Book No. H00048, L-$4.00, M-$2.00

New Design Standards for Flexible Couplings, 1966, Book No. H00050, L-$3.50, M-$1.75

Physics of Fiber Contact, 1970, Book No. G00067, L-$4.00, M-$2.00

Fluids

Advances in Fluidics (With Discussion Booklet), Book No. G00044, L-$22.00, M-$11.00
Discussions only, Book No. H00008, L-$2.00, M-$1.00

Application - Part II of Fluid Meters: Interim Supplement 19.5 on Instruments and Apparatus, Book No. G00018, L-$14.00, M-$11.20

Applications of Fluid Mechanics to Wind Engineering, Book No. G00018, L-$3.50, M-$1.75

Cavitation Forum - 1970 (With Discussion Booklet), Book No. I00071, L-$5.50, M-$2.75
Cavitation Forum—1971, Book No. I00002, L-$5.50, M-$2.75
Cavitation and Polyphase Flow Forum—1975, Book No. I00087, L-$7.00, M-$3.50
Cavitation and Polyphase Flow Forum—1976, Book No. I00097, L-$10.00, M-$5.00
Cavitation and Polyphase Flow—1978, Book No. I00120, L-$8.00, M-$4.00
Cavitation in Fluid Machinery (With Discussion Booklet), Book No. H00043, L-$16.00, M-$8.00
Discussions only, Book No. H00062, L-$2.50, M-$1.25
Cavitation Research Facilities and Techniques (Including Discussions), Book No. I00044, L-$12.50, M-$6.25
Discussions only, Book No. I00052, L-$2.00, M-$1.00
Cavitation State of Knowledge (With Discussion Booklet), Book No. I00013, L-$18.50, M-$9.25
Discussions only, Book No. I00025, L-$2.50, M-$1.25
Cavity Flows, Book No. I00085, L-$15.00, M-$7.50
Centrifugal Compressor and Pump Stability, Stall and Surge, Book No. I00098, L-$20.00, M-$10.00
Condensation in High Speed Flows, Book No. G00119, L-$16.00, M-$8.00
Cost of Inefficiency in Fluid Machinery, Book No. I00086, L-$10.00, M-$5.00
Flow Studies in Air and Water Pollution, Book No. I00001, L-$22.00, M-$11.00
Fluid Dynamic Measurements, Book No. G00081, L-$17.50, M-$8.75
Fluid Jet Control Devices, Book No. G00003, L-$8.50, M-$4.25
Fluid Mechanics in the Petroleum Industry, Book No. G00093, L-$10.00, M-$5.00
Fluid Mechanics of Combustion, Book No. I00034, L-$20.00, M-$10.00
Fluid Mechanics of Mixing, Book No. I00033, L-$20.00, M-$10.00
Fluid Meters, Their Theory and Application - Sixth Edition, Book No. G00079, L-$20.00, M-$10.00
Fluids Engineering in Advanced Energy Systems, Book No. H00122, L-$30.00, M-$15.00
Fluid Transients and Acoustics in the Power Industry, Book No. H00120, L-$40.00, M-$20.00
Measurement in Unsteady Flow, Book No. H00041, L-$8.50, M-$4.25
Measurements in Polyphase Flows, Book No. H00121, L-$20.00, M-$10.00
Multi-Phase Flow Symposium, Book No. H00032, L-$7.50, M-$3.75
Noise and Fluids Engineering, Book No. I00115, L-$30.00, M-$15.00
Nonsteady Fluid Dynamics, Book No. H00118, L-$30.00, M-$15.00
Polyphase Flow in Turbomachinery, Book No. H00123, L-$40.00, M-$20.00
Role of Nucleation in Boiling and Cavitation (With Discussion Booklet), Book No. I00072, L-$22.00, M-$11.00
Discussions only, Book No. I00078, L-$2.00, M-$1.00
Topics in Fluid Film Bearing and Rotor Systems Design and Optimization, Book No. I00118, L-$30.00, M-$15.00
Water Hammer, Book No. I00007, L-$5.00, M-$2.50
Water Hammer in Hydraulics and Wave Surge in Electricity, Book No. I00041, L-$15.00, M-$12.00

Heat Transfer

Advances in Heat and Mass Transfer at Air-Water Interfaces, Book No. H00127, L-$18.00, M-$9.00
Advances in Thermophysical Properties at Extreme Temperatures and Pressures, 1965, Book No. I00055, L-$19.00, M-$9.50
Augmentation of Convective Heat and Mass Transfer, 1970, Book No. G00076, L-$21.00, M-$10.50
Cogeneration District Heating Applications, Book No. H00128, L-$7.00, M-$3.50
Dry and Wet/Dry Cooling Towers for Power Plants—Vol. 6, 1973, Book No. H00015, L-$14.50, M-$7.25
Environmental Effects of Atmospheric Heat/Moisture Releases (Cooling Towers, Cooling Ponds, and Area Sources), Book No. H00100, L-$18.00, M-$9.00
Environmental Effects of Thermal Discharges—The Elements of Formulating a Rational Public Policy, 1970, Book No. G00073, L-$8.00, M-$4.00
Fifth Symposium on Thermophysical Properties, 1970, Book No. G00068, L-$19.00, M-$9.50
Fourth Symposium on Thermophysical Properties, 1968, Book No. I00018, L-$25.00, M-$12.50
Gas Turbine Heat Transfer - 1978, Book No. H00125, L-$18.00, M-$9.00
Heat Transfer in Energy Conservation, 1977, Book No. H00106, L-$18.00, M-$9.00
Heat Transfer in Low Reynolds Number Flow—Vol. 5, 1971, Book No. H00071, L-$8.00, M-$4.00
Heat Transfer in Rod Bundles, 1968, Book No. H00003, L-$8.50, M-$4.25
Heat Transfer in Solar Energy Systems, 1977, Book No. H00104, L-$20.00, M-$10.00
International Developments in Heat Transfer, 1963, Book No. H00012, L-$40.00, M-$20.00
Liquid-Metal Heat Transfer and Fluid Dynamics, 1970, Book No. G00077, L-$23.50, M-$11.75
Non-Equilibrium Two-Phase Flows, 1975, Book No. G00094, L-$10.00, M-$5.00
Nuclear Reactor Safety Heat Transfer, 1977, Book No. H00105, L-$12.00, M-$6.00
Proceedings of the Seventh Symposium on Thermophysical Properties, Book No. G00133, L-$90.00, M-$60.00
Progress in Int'l Research on Thermodynamic and Transport Properties, 1962, Book No. G00039, L-$24.00, M-$12.00
Recent Developments in Thermophysical Properties Research—Vol. 3, 1971, Book No. H00069, L-$3.50, M-$1.75
Sixth Symposium on Thermophysical Properties, 1973, Book No. G00046, L-$24.50, M-$12.25
Spent Nuclear Fuel Heat Transfer—Vol. 2, 1971, Book No. H00068, L-$6.00, M-$3.00
Survey of Nucleonic Heat Transfer—Vol. 1, 1971, Book No. H00067, L-$5.00, M-$2.50
Symposium on the Thermal and Hydraulic Aspects of Nuclear Reactor Safety
Volume 1—Light Water Reactors, 1977, Book No. G00127, L-$25.00, M-$20.00
Volume 2—Liquid Metal Fast Breeder Reactors, 1977, Book No. G00128, L-$25.00, M-$20.00
Thermal Problems in Biotechnology, 1968, Book No. G00051, L-$7.50, M-$3.75
Topics in Two-Phase Heat Transfer and Flow, Book No. H00129, L-$30.00, M-$15.00
Transport Phenomena in Atmospheric and Ecological Systems, 1967, Book No. G00061, L-$3.50, M-$1.75
Two-Phase Flow & Heat Transfer in Rod Bundles, 1969, Book No. H00027, L-$11.00, M-$5.50
Two Phase Flow Instrumentation, 1969, Book No. H00016, L-$9.50, M-$4.75

Lubrication

Assessment of Lubricant Technology, 1972, Book No. G00001, L-$20.00, M-$10.00
Bearing and Seal Design in Nuclear Power Machinery, 1967, Book No. G00056, L-$22.00, M-$11.00
Boundary Lubrication—An Appraisal of World Literature, 1969, Book No. G00005, L-$33.50, M-$16.75
Diagnosing Machinery Health, Book No. H00130, L-$8.00, M-$4.00
Gas Lubrication (by V. N. Constantinescu), Translation from Rumanian, 1969, Book No. G00015, L-$19.50, M-$9.75
Loss Prevention of Rotating Machinery, 1972, Book No. G00017, L-$7.50, M-$3.75
PTFE Seals in Reciprocating Compressors—An ASME Design Manual, 1975, Book No. I00082, L-$15.00, M-$7.50
Strategy for Energy Conservation Through Tribology, Book No. H00109, L-$15.00, M-$7.50

Management

Effective Management of Engineering Resources, 1975, Book No. H00095, L-$6.00, M-$3.00
Engineer's Responsibility to Society, 1969, Book No. I00009, L-$4.00, M-$2.00
Fifty Years Progress in Management 1910-1960, Book No. I00011, L-$14.00, M-$7.00
Frank Gilbreth Centennial, 1969, Book No. I00043, L-$6.00, M-$3.00
Impact of Competitive Technology on Engineering Management, 1973, Book No. H00051, L-$5.00, M-$2.50
International Impact on Engineering Managers, 1965, Book No. I00064, L-$6.00, M-$3.00
International Patterns of Engineering Management—A Constructive Analysis, 1974, Book No. H00055, L-$6.00, M-$3.00
Managing Engineering Manpower, 1967, Book No. G00057, L-$5.00, M-$2.50
Small Plant Management, 1960, Book No. H00028, L-$14.00, M-$11.20
Unwritten Laws of Engineering, 1944, Book No. I00006, L-$1.00, M-$.50

Materials

Analysis of Data from Symposium on Heat-Treated Steels for Elevated Temperature Service, 1967, Book No. G00045, L-$3.50, M-$1.75
ASME Handbook—Engineering Tables, 1956, Book No. G00021, L-$22.50, M-$18.00
ASME Handbook: Metals Engineering—Design, 1965, Book No. H00001, L-$28.75, M-$23.00
ASME Handbook: Metals Engineering—Processes, 1958, Book No. I00023, L-$22.50, M-$18.00
ASME Handbook: Metals Engineering—Properties, 1954, Book No. H00002, L-$22.50, M-$18.00
1976 ASME-MPC Symposium on Creep-Fatigue Interaction, Series MPC-3, 1976, Book No. G00112, L-$45.00, M-$22.50
Behavior of Superheater Alloys in High Temperature, High Pressure Steam, 1968, Book No. H00014, L-$7.00, M-$3.50
Characterization of Materials for Service at Elevated Temperatures, Series MPC-7, Book No. G00134, L-$50.00, M-$25.00
Chrome-Moly Steel in 1976, Series MPC-4, 1976, Book No. G00113, L-$16.00, M-$8.00
Ductility and Toughness Considerations in Elevated Temperature Service, Series MPC-8, Book No. H00132, L-$46.00, M-$23.00
Effects of Melting and Processing Variables on Mechanical Properties of Steels, Series MPC-6, 1977, Book No. G00126, L-$35.00, M-$17.50
Elevated Temperature Properties in Austenitic Stainless Steels, 1974, Book No. G00058, L-$15.00, M-$7.50
Fracture Toughness of Heavy-Wall Welded Tankage Steel, Series MPC-5, 1977, Book No. G00125, L-$15.00, M-$7.50
Generation of Isochronous Stress - Strain Curves, 1972, Book No. I00049, L-$8.00, M-$4.00
Graphite Fiber Composites, 1967, Book No. G00060, L-$3.50, M-$1.75
Heat-Treated Steels for Elevated Temperature Service, 1966, Book No. H00056, L-$9.50, M-$4.75
Int'l Research in Production Engineering, 1963, Book No. G00024, L-$28.00, M-$14.00
Manual on Cutting of Metals, 1952, Book No. B00016, L-$12.00, M-$6.00
Materials Technology—An Interamerican Approach, 1968, Book No. H00034, L-$27.00, M-$13.50
Materials Technology—Part I, An Interamerican Approach for the Seventies, 1970, Book No. I00075, L-$30.00, M-$15.00
Materials Education—Part II, An Interamerican Approach for the Seventies, 1970, Book No. I00076, L-$15.00, M-$7.50
Measurements of the Impacts of Materials Substitution—A Case Study in the Automobile Industry, Book No. H00131, L-$8.00, M-$4.00

Metal Properties for the Petroleum and Chemical Industries, Series MPC-2, 1976, Book No. G00103, L-$30.00, M-$15.00
Properties of Steel Weldments for Elevated Temperature Pressure Containment Applications, Series MPC-9, Book No. H00133, L-$30.00, M-$15.00
Properties of Weldments at Elevated Temperatures, 1968, Book No. H00018, L-$8.00, M-$4.00
Reports of Current Work on Behavior of Materials at Elevated Temperatures, 1974, Book No. G00087, L-$18.00, M-$9.00
Structural Materials for Service at Elevated Temperatures in Nuclear Power Generation, Series MPC-1, 1975, Book No. G00099, L-$50.00, M-$25.00
Structures and Materials, 1969, Book No. H00023, L-$22.00, M-$11.00
2-1/4 Chrome 1 Molybdenum Steel in Pressure Vessels and Piping, 1971, Book No. G00011, L-$12.50, M-$6.25
2-1/4 Chrome 1 Molybdenum Steel in Pressure Vessels and Piping—A Current Evaluation, 1972, Book No. G00025, L-$9.50, M-$4.75
Wear of Materials—1977, Book No. H00100, L-$50.00, M-$50.00

Metric

SI-1 ASME Orientation and Guide for Use of SI (Metric) Units—Eighth Edition, 1978, Book No. E00058, L-$2.00, M-$1.00
SI-2 ASME Text Booklet, SI Units in Strength of Materials—Second Edition, 1976, Book No. E00082, L-$3.00, M-$1.50
SI-3 ASME Text Booklet, SI Units in Dynamics, 1976, Book No. E00083, L-$4.00, M-$2.00
SI-4 ASME Text Booklet—SI Units in Thermodynamics, 1976, Book No. E00084, L-$6.50, M-$3.25
SI-5 ASME Text Booklet, SI Units in Fluid Mechanics, 1976, Book No. E00085, L-$5.00, M-$2.50
SI-6 ASME Text Booklet, SI Units in Kinematics, 1976, Book No. E00086, L-$3.00, M-$1.50
SI-7 ASME Text Booklet, SI Units in Heat Transfer, 1977, Book No. E00087, L-$5.00, M-$2.50
SI-8 ASME Text Booklet, SI Units in Vibration, 1976, Book No. E00088, L-$3.00, M-$1.50
SI-10 Steam Charts, SI (Metric) and U. S. Customary Units, 1976, Book No. E00090, L-$25.00, M-$12.50
Transactions of Technical Conference on Metric Mechanical Fasteners, 1975, Book No. E00092, L-$12.00, M-$9.60

Ocean

Hyperbaric Diving Systems and Thermal Protection, OED-Vol. 6, Book No. H00134, L-$24.00, M-$12.00
Marine Propulsion Systems, 1976, Book No. G00110, L-$25.00, M-$12.50
Ocean Energy Resources, OED-Vol. 4, 1977, Book No. G00120, L-$15.00, M-$7.50
Ocean Engineering Mechanics, 1975, Book No. G00095, L-$20.00, M-$10.00
Ocean Resources Utilization, 1976, Book No. G00111, L-$20.00, M-10.00
Ocean Thermal Energy Conversion, OED-Vol. 5, Book No. G00139, L-$18.00, M-$9.00

Petroleum

Emerging Energy Technologies—1978, Book No. G00141, L-$20.00, M-$10.00
Mining Technology for Energy Resources: Advances for the 80's, Book No. G00140, L-$8.00, M-$4.00

Power

Advanced Centrifugal Compressors, 1971, Book No. H00038, L-$16.00, M-$8.00
Advances in Energy Conversion Engineering (Papers, Critiques and Summaries), 1967, Book No. G00053, L-$32.00, M-$16.00
ASME Steam Tables—Third Edition (with Mollier Chart), 1977, Book No. G00038, L-$18.00, M-$9.00
Mollier Chart only, Book No. G00041, L-$4.00, M-$2.00
ASME Steam Tables in SI (Metric) Units for Instructional Use, 1977, Book No. H00093, L-$3.00, M-$1.50
1976 ASME-ANS International Conference on Advanced Nuclear Energy Systems, 1976, Book No. H00099, L-$55.00, M-$55.00
CIMAC—10th International Conference on Combustion Engines:
Papers and Discussions, 1973, Book No. H00080, L-$65.00, M-$65.00
Discussions only, 1973, Book No. H00085, L-$20.00, M-$20.00
Coal Fouling and Slagging Parameters, 1974, Book No. H00086, L-$6.50, M-$3.25
Corrosion and Deposits from Combustion Gases, Abstracts and Index, 1970, Book No. H00084, L-$25.00, M-$12.50
Diesel and Gas Engine Power:
1970 Proceedings, Book No. H00075, L-$15.00, M-$7.50
1969 Proceedings, Book No. H00009, L-$12.50, M-$6.25
1968 Proceedings, Book No. H00045, L-$15.00, M-$7.50
Diesel Fuel Oils, 1948, Book No. G00012, L-$4.00, M-$2.00
Energy Conservation in Building Heating and Air Conditioning Systems, Book No. H00116, L-$18.00, M-$9.00
Engineering Developments in Energy Conversion, 1965, Book No. I00062, L-$14.00, M-$7.00
Fatigue Life Technology, 1977, Book No. H00096, L-$18.00, M-$9.00
Fuels Research in the Western World, 1964, Book No. I00054, L-$2.00, M-$1.00
Gas Turbine Combustion and Fuels Technology, Book No. H00107, L-$14.00, M-$7.00
Gas Turbine Pumps, 1972, Book No. H00076, L-$12.50, M-$6.25
Loss Prevention of Rotating Machinery, 1972, Book No. G00017, L-$7.50, M-$3.75
Modeling, Simulation, Testing and Measurements for Solar Energy Systems, Book No. H00138, L-$18.00, M-$9.00
Nuclear Power Waste Technology, Book No. G00132, L-$40.00, M-$20.00
1974 Report on Diesel and Gas Engine Power Costs, 1974, Book No. H00049, L-$5.50, M-$2.75
9th Intersociety Energy Conversion Engineering Conference, 1974, Book No. H00026, L-$70.00, M-$60.00
Theoretical Steam Rate Tables, 1969, Book No. I00003, L-$15.00, M-$7.50
Thermal Storage and Heat Transfer in Solar Energy Systems, Book No. H00125, L-$8.00, M-$4.00
Turbomachinery Developments in Steam and Gas Turbines, 1977, Book No. H00108, L-$16.00, M-$8.00

Pressure Vessels

Advances in Design for Elevated Temperature Environment, 1975, Book No. G00092, L-$18.50, M-$9.25
Composites in Pressure Vessels and Piping, Series PVP-PB-021, 1977, Book No. G00121, L-$25.00, M-$12.50
Computational Fracture Mechanics, 1975, Book No. G00091, L-$18.50, M-$9.25
Computer Technology in Fusion Energy Research, Book No. H00136, Series PVP-PB-031, Book No. H00136, L-$18.00, M-$9.00
Coolant Boundary Integrity Considerations in Breeder Reactor Design, Series PVP-PB-027, Book No. G00135, L-$14.00, M-$7.00
Design Criteria of Boilers and Pressure Vessels—1977, Book No. G00114, L-$7.50, M-$6.00
Design for Elevated Temperature Environment, 1971, Book No. G00035, L-$7.50, M-$3.75
Dynamic Analysis of Pressure Vessel and Piping Components, Series PVP-PB-022, 1977, Book No. G00122, L-$16.00, M-$8.00
1976 Elevated Temperature Design Symposium, 1976, Book No. G00104, L-$6.00, M-$3.00
Engineering Computer Software: Verification, Qualification, Certification, 1971, Book No. G00042, L-$12.50, M-$6.25
Failure Data and Failure Analysis: In Power and Processing Industries, Series PVP-PB-023, 1977, Book No. G00123, L-$16.00, M-$8.00
Fluid-Structure Interaction Phenomena in Pressure Vessel and Piping Systems, Series PVP-PB-026, 1977, Book No. G00130, L-$16.00, M-$8.00
Inelastic Behavior of Pressure Vessel and Piping Components, Book No. G00136, L-$20.00, M-$10.00
Inservice Data Reporting and Analysis, Book No. H00137, L-$30.00, M-$15.00
Limit Analysis Using Finite Elements, 1976, Book No. G00109, L-$14.00, M-$7.00
Numerical Modeling of Manufacturing Processes, Series PVP-PB-025, 1977, Book No. G00131, L-$20.00, M-$10.00
Pressure Vessel and Piping 1972 Computer Programs Verification, 1972, Book No. I00024, L-$15.00, M-$7.50
First International Conference on Pressure Vessel Technology:
Design and Analysis—Part I, 1969, Book No. G00062, L-$37.50, M-$18.75
Materials and Fabrication—Part II, 1969, Book No. G00063, L-$37.50, M-$18.75
Discussions—Part III, 1970, Book No. G00064, L-$20.00, M-$10.00
Second International Conference on Pressure Vessel Technology:
Part I—Design and Analysis, 1973, Book No. G00082, L-$40.00, M-$20.00
Part II—Materials, Fabrication and Inspection, 1973, Book No. G00083, L-$40.00, M-$20.00
Part III—Discussions, 1974, Book No. G00084, L-$20.00, M-$10.00
Third International Conference on Pressure Vessel Technology:
Part I—Design and Analysis, 1977, Book No. G00115, L-$75.00, M-$75.00
Part II—Materials and Fabrication, 1977, Book No. G000116, L-$75.00, M-$75.00
Part III—Discussions, 1977, Book No. G00117, L-$50.00, M-$50.00
Pressure Vessels and Piping: Analysis and Computers, 1974, Book No. G00031, L-$20.00, M-$10.00
Pressure Vessels and Piping/Computer Program Evaluation and Qualification, Series PVP-PV-024, 1977, Book No. G00124, L-$16.00, M-$8.00
Pressure Vessels and Piping: Design and Analysis—A Decade of Progress:
Volume One—Analysis, 1972, Book No. G00019, L-$35.00, M-$17.50
Volume Two—Components and Structural Dynamics, 1972, Book No. G00020, L-$35.00, M-$17.50
Volume Three—Materials and Fabrication, 1976, Book No. G00100, L-$50.00, M-$25.00
Volume Four—Quality Assurance—Applications—Components, 1976, Book No. G00101, L-$50.00, M-$25.00
Pressure Vessels and Piping—Verification and Qualification of Inelastic Analysis Computer Programs, 1975, Book No. G00088, L-$12.50, M-$6.25
Probabilistic Analysis and Design of Nuclear Power Plant Structures, Series PVP-PB-030, Book No. H00135, L-$18.00, M-$9.00
Reliability Engineering in Pressure Vessels and Piping, 1975, Book No. G00089, L-$11.00, M-$5.50
Seismic Analysis of Pressure Vessel and Piping Components, 1971, Book No. I00030, L-$15.00, M-$7.50
Simplified Methods in Pressure Vessel Analysis, Series PVP-PB-029, Book No. G00137, L-$14.00, M-$7.00
Software User: Education and Qualification, 1972, Book No. I00016, L-$5.50, M-$2.75
Thermal Structural Analysis Programs: A Survey and Evaluation, 1972, Book No. H00019, L-$8.50, M-$4.25
Three-Dimensional Continuum Computer Programs for Structural Analysis, 1972, Book No. I00021, L-$6.00, M-$3.00

Research

Bourdon Tubes and Bourdon Tube Gages: An Annotated Bibliography, Book No. H00094, L-$7.00, M-$3.50

Research Needs Report: Design, Materials, and Manufacturing Research, 1976, Book No. H00089, L-$5.00, M-$2.50
Research Needs Report: Energy Conversion Research, 1976, Book No. H00090, L-$10.00, M-$5.00

Solid Waste

Combustion Fundamentals for Waste Incineration, 1974, Book No. H00087, L-$30.00, M-$15.00
Disposal of Industrial Wastes by Combustion, Present State-of-the-Art—Volume III, 1977, Book No. H00092, L-$15.00, M-$7.50
Incinerator and Solid Waste Technology, 1962–1975, Book No. I00092, L-$60.00, M-$30.00
1970 National Incinerator Conference (With Discussions), 1970, Book No. I00070, L-$25.00, M-$12.50
Discussions only, Book No. I00060, L-$6.50, M-$3.25
1972 National Incinerator Conference (With Discussions), 1972, Book No. I00081, L-$28.00, M-$14.00
Discussions only, Book No. I00079, L-$5.00, M-$2.50
1974 National Incinerator Conference—Resource Recovery Thru Incineration (With Discussions), 1974, Book No. I00083, L-$35.00, M-$17.50
1976 National Waste Processing Conference Proceedings—From Waste to Resource Through Processing (With Supplement), 1976, Book No. I00096, L-$90.00, M-$45.00
1978 National Waste Processing Conference: Energy Conservation Through Waste Utilization, Book No. I00119, L-$90.00, M-$45.00
Present Status and Research Needs in Energy Recovery from Wastes-Proceedings of the 1976 Conference, 1977, Book No. H00091, L-$35.00, M-$17.50

Transportation

Anthology of Rail Vehicle Dynamics—Freight Car Impact—Vol. 1, 1971, Book No. H00064, L-$20.00, M-$10.00
Anthology of Rail Vehicle Dynamics—Effects of Train Action and Rail Car Vibration—Vol. II, 1972, Book No. H00065, L-$25.00, M-$12.50
Anthology of Rail Vehicle Dynamics—Axles, Wheels and Rail-Wheel Interaction—Vol. III, 1973, Book No. H00066, L-$30.00, M-$15.00
Combined price for H00064-65-66, L-$65.00, M-$32.50
Defining Transportation Requirements—1968 Transportation Engineering Conference, 1969, Book No. I00063, L-$17.50, M-$8.75
Fifth International Forum for Air Cargo, 1970, Book No. G00069, L-$12.50, M-$6.25
1966 National Transportation Symposium, 1966, Book No. H00058, L-$22.00, M-$11.00
1970 Rail Transportation Proceedings, 1970, Book No. G00071, L-$19.00, M-$9.50
1971 Rail Transportation Proceedings, 1971, Book No. G00080, L-$20.00, M-$10.00
1972 Rail Transportation Proceedings, 1972, Book No. H00053, L-$25.00, M-$12.50
1973 Rail Transportation Proceedings, 1973, Book No. G00023, L-$25.00, M-$12.50
1974 Rail Transportation Proceedings, 1974, Book No. G00086, L-$25.00, M-$12.50
1975 Rail Transportation Proceedings, 1976, Book No. G00098, L-$30.00, M-$15.00
Symposium on Railroad Equipment Dynamics, 1976, Book No. G00102, L-$20.00, M-$10.00

Other Books of Interest

Adventures in the Navy, in Education, Science, Engineering and in War (by W. F. Durand) A Life Story, 1953, Book No. A00003, L-$5.00, M-$2.50
Annotated Bibliography on High Pressure Technology, 1964, Book No. I00046, L-$14.50, M-$7.25
Index to ASME Technical Papers (1880–1956), 1957, Book No. B00028, L-$29.00, M-$14.50
High-Pressure Measurement, 1963, Book No. H00031, L-$10.95, M-$8.75
I Remember—Autobiography of Dexter S. Kimball, 1953, Book No. A00006, L-$5.00, M-$2.50
Miller, Fred J., A Biography, 1941, Book No. A00007, L-$2.00, M-$1.00
Modern Jupiter—The Story of Charles Proteus Steinmetz, 1958, Book No. A00011, L-$4.00, M-$2.00
Scientific Blacksmith—An Autobiography of Mortimer E. Cooley, 1947, Book No. A00010, L-$4.50, M-$2.25
Standard Handbook for Mechanical Engineers (7th Edition), 1967, Book No. E00028, L-$35.00, M-$28.00

Periodicals

MECHANICAL ENGINEERING—Annual subscription price is $20.00 (subscription included in membership dues). Add $2.00 for postage for subscriptions mailed outside the U.S. and Canada. New subscriptions and subscriptions mailed outside the U.S. and Canada must be prepaid.

APPLIED MECHANICS REVIEWS (published monthly)—Annual subscription price is $225.00 to nonmembers and $200.00 to ASME members. Add $25.00 for each subscription mailed outside the U.S. and Canada. New subscriptions and subscriptions mailed outside the U.S. and Canada must be prepaid.

TRANSACTIONS OF THE ASME
Journal of Applied Mechanics
Journal of Biomechanical Engineering
Journal of Dynamic Systems, Measurement and Control
Journal of Engineering for Industry
Journal of Engineering for Power
Journal of Engineering Materials and Technology
Journal of Fluids Engineering
Journal of Heat Transfer
Journal of Lubrication Technology
Journal of Mechanical Design
Journal of Pressure Vessel Technology

Annual subscription rates to nonmembers: one journal $50.00, two journals, $96.00, three journals $142.00, four journals $188.00, five journals $232.00, six journals $276.00, seven journals $318.00, eight journals $360.00, nine journals $400.00, ten journals $440.00, all eleven journals $480.00. ASME members: 50% discount on first subscription for any one Transactions journal. Add $1.50 for each journal mailed outside the U.S. and Canada. Transactions subscriptions in excess of twelve ... $40.00 per annual subscription. New subscriptions and subscriptions mailed outside the U. S. and Canada must be prepaid.

ASME MISCELLANEOUS PAPERS

The papers in this list were presented at ASME during 1977 but were not published in the *Transactions* of the ASME or in full in MECHANICAL ENGINEERING. They can be consulted in the Engineering Societies Library where photostatic copies may be obtained and quotations will be given upon request.

A

Aaronson, S. F.
Industrial Truck Safety and Reliability Considerations. 77—RC-7.

Abbas, B. A., and Thomas, J.
Dynamic Stability of Fixed-Fixed and Free-Free Timoshenko Beams Resting on an Elastic Foundation. 77—DET-134.

Abbott, D. E.
see **Zimmerman, D. R.**

Abdel-Kalik, S. I., and Hunter, T. O.
Assessment of Surface-Heating Problems in Laser-Fusion Reactors. 77—HT-83.

Abdel-Salam, O. E., and Winnick, J.
Comparison of Electrochemical Carbon Dioxide Concentration Methods Using Different Electrolytes. 77—ENAs-3.

Abedi-Hayati, S., and Auslander, D.
Control of a Single-Actuator Shaking Table. 77—WA/Aut-11.

Abou-Sayed, A. S., Jones, A. H., and Simonson, E. R.
On the Stimulation of Geothermal Reservoir by Downward Hydraulic Fracturing. 77—Pet-81.

AbuRomia, M. M., Vosch, R. J., Cho, S. M., Dietz, D., and Jaisingh, G.
Flow Model Test Development of CRBRP Intermediate Heat Exchanger. 77—JPGC-NE-10.

Aceto, L. D.
see **Kollrack, R.**

Ackerman, A. J.
The Atomic Power Insurance Act Violates The Constitution of The United States. 77—WA/TS-5.

Adams, R. G., and Boenig, F. H.
The Design of Turbomachinery for the Gas Turbine (Direct Cycle) High Temperature Gas Cooled Reactor Power Plant. 77-GT-38.

Adubi, F. A.
see **Weaver, D. S.**

Ahlbeck, D. R., and Harrison, H. D.
Techniques for Measuring Wheel/Rail Forces with Trackside Instrumentation. 77—WA/RT-9.

Ahmad, J., and Loo, F. T. C.
On the Use of Strain Energy Density Fracture Criterion in the Design of Gears Using Finite Element Method. 77—DET-158.

Aiuchi, S.
see **Hayashi, K.**

Akita, Y.
see **Sasaki, Y.**

Alario, J., and Canaras, T.
Modular Heat Pipe Radiator. 77—ENAs-39.

Alcone, J. M.
see **Donaldson, A. B.**

Alff, R. K., Manning, G. B., and Sheldon, R. C.
The High Temperature Cooled Gas Turbine in Combined Cycle with Integrated Low Btu Gasification. 77—JPGC-GT-7.

Allan, J. J., and Biggs, M. D.
Design of Mechanical Components Using Optimal Control. 77—DET-46.

Allsopp, L. E., and Jones, D. L.
The Design and Development of Turbocharged 1 Litre per Cylinder 4 and 6 Cylinder Air Cooled Diesel Engines. 77—DGP-9.

Al-Qureshi, H. A., and DeMorais, G. A.
Analysis of Multi-Inversion of Tube Ends. 77—DE-35.

Altiero, N. J., and Sikarskie, D. L.
Chip Formation in Anisotropic Rock. 77—Pet-52.

Amos, D. J.
Analytical Investigation of Thermal Barrier Coatings for Advanced Power Generation Combustion Turbines. 77—WA/Ener-13.

Amtmann, H. H.
see **McDonald, C. F.**

An, K. N.
see **Chao, E. Y.**

Anderson, B. H.
see **Fairchild, R. C.**

Anderson, D. C.
see **Brewer, J. A.**

Anderson, D. C.
see **Langhorst, F. E.**

Anderson, D. E.
see **Das, A. K.**

Anderson, D. G.
What Design Engineers Should Know About Laser Welding and Cutting. 77—DE-32.

Anderson, D. N.
Emissions and Performance of Catalysts for Gas Turbine Catalytic Combustors. 77—GT-65.

Arledge, R. G., and Haji-Sheikh, A.
An Iterative Approach to the Solution of Inverse Heat Conduction Problems. 77—WA/TM-2.

Armstrong, C. H., and Newton, D. H.
Startup and Initial Operating Experience of Braintree's 85-Megawatt Combined-Cycle Unit. 77—JPGC-GT-1.

Arnold, H. S.
see **Librizzi, F. P.**

Arnott, J. J.
see **Woods, R. L.**

Assard, D. G., and Crouchley, A. B.
FT4E - The Optimization of a Proven Modular Industrial Gas Turbine. 77—GT-23.

Attia, A. Y., and Fahmy, M. A. K.
Wear of Gears of Double Circular-Arc Tooth-Profile. 77—DET-59.

Auld, R. M.
see **Woods, R. L.**

Auslander, D.
see **Abedi-Hayati, S.**

Aziz, A., and El-Ariny, A. S.
A Perturbation Approach to Heat Conduction with Temperature Dependent Generation and Thermal Conductivity. 77—HT-28.

B

Baba, N.
see **Sasaki, Y.**

Baba, T.
see **Tanaka, K.**

Bachschmid, N., Pizzigoni, B., and Di Pasquantonio, F.
A Method for Investigating the Dynamic Behavior of a Turbomachinery Shaft on a Foundation. 77—DET-16.

Baidakov, V.
see **Skripov, V.**

Bailey, J. R.
see **Emerson, P. D.**

Bailey, R. L., and Thornton, G. K.
The Development of a Large Diameter Rotating Helium Rig. 77—WA/HT-38.

Bailey, T., and Wall, F. M.
The Design of Ethylene Pyrolysis Furnaces as Related to Prevailing Energy Costs and Availability. 77—Pet-36.

Baker, E. W.
see **Sosa, F.**

Baker, P. H., and Schulze, F. W.
Progress in Railway Mechanical Engineering 1976-1977 Report of Survey Committee Locomotives. 77—WA/RT-12.

Bakke, E., and Kreith, F.
Disk Pump Performance in Turbulent Flow. 77—WA/FE-26.

Balasubramaniam, T. A.
see **Bowman, H. F.**

Ballou, E. V., Clark, J. A., Kubo, L. Y., Spitze, L. A., and Wydeven, T.
Urea Transport Through Composite Polyallylamine Membranes. 77—ENAs-5.

Bamford, W. H.
Fatigue Crack Growth of Stainless Steel Piping in a Pressurized Water Reactor Environment. 77—PVP-34.

Bammert, K., Krapp, R., and Reiter, U.
Considerations Concerning the Layout of Nuclear Helium Turbine Power Plants with Optimum Economy. 77—GT-79.

Bar-Cohen, A.
Constant Heating Transient Natural Convection in Partially Insulated Vertical Enclosures. 77-HT-35.

Bar-Cohen, A.
Optimum Natural Convection Cooling of Electronic Assemblies. 77—DE-37.

Bartel, D.
see **Haemmerle, J.**

Bartells, P. S., Brown, R. J., Loudin, G. W., Malone, B. G., Oberjohn, W. J., and Rosser, R. M.
Transient Response of a Once-Through PWR Steam Generator. 77—JPGC-NE-1.

Barth, E. W.
see **De Choudhury, P.**

Bartine, D. E.
see **Kasten, P. R.**

Barton, T. H.
see **Memarzadeh, M. A.**

Bass, J. E.
see **McDonald, C. F.**

Batheit, A. G.
see **White, R. D.**

Battaglia, J. A., Corpora, C. J., and Kuroda, S.
Operating Experience and Advanced Technique in Liquid Radwaste Processing. 77—JPGC-NE-17.

Batty, J. C.
see **Pate, A. J.**

Baum, A. J., Purcupile, J. C., and Dougall, R. S.
Transition and Film Boiling Heat Transfer from Vertical Surfaces. 77—HT-82.

Baxter, W.
see **Crosby, J.**

Baz, A.
Dynamically Damped Floating Platforms. 77—Pet-58.

Bazan, J.
see **Zauderer, B.**

Bazell, G. E.
see **Murray, R. W.**

Bazinet, G. D.
see **Verderosa, M. A.**

Beaudry, J. M., and Walker, C. J.
An Automatic Blending and Injection System for Tertiary Oil Recovery by Chemical Flooding. 77—Pet-44.

Beck, S. A.
Digital Experimental Techniques for Troubleshooting Vibration Problems in Rotating Equipment. 77—PVP-49.

Beese, J. G.
Plastic Instability of Thin-Walled Spherical and Cylindrical Shells of Laminated Construction. 77—PVP-40.

Bejan, A., and Tien, C.-L.
Transient Behavior of Normal Zones in One-Dimensional Composite Superconductors. 77—HT-74.

Belkune, R. W., and Ramesh, C. K.
Forced Response of Stiffened Plates. 77—DET-150.

Bell, C. J.
see **Murphree, D. L.**

Bellas, G. T.
see **Demeter, J. J.**

Beller, L. S., and Mikeseli, C. R.
Automated Ultrasonic Testing - Capabilities, Limitations and Methods. 77—PVP-16.

Bender, D. J., and Hoffman, M. A.
A Two-Phase-Flow Cooling Concept for Fusion Reactor Blankets. 77—HT-86.

Bennett, J. G., Dove, R. C., and Merson, J. L.
Seismic Response of a Block Type Nuclear Reactor Core. 77—DET-138.

Bennett, J. L.
Manufacturers' Response to Product Safety Standards. 77—DE-4.

Berger, B. S.
see **Curtis, D. M.**

Berner, F., Ledford, O. C., and Schleicher, M.
Fluid Loop Systems for Use in Spacecraft Thermal Control. 77—ENAs-13.

Bervig, D., Wiley, A., and Sutton, T.
Influence of Static and Dynamic Asymmetric Loading Conditions on Silo Design. 77—DET-145.
Berzins, V., and Ross, L. W.
Carbon Dioxide Absorption in Packed Beds of Alkaline Carbonate Materials. 77—ENAs-17.
Bhattacharyya, D.
see **Harris, L. R.**
Bhatti, M. S., and Savery, C. W.
Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature. 77—WA/HT-4.
Bhavikatti, S. S., and Ramakrishnan, C. V.
Optimum Design of Fillets in Flat and Round Tension Bars. 77—DET-45.
Bibbee, J. N.
New Developments in Instrumentation and Control. 77—WA/PID-1.
Biderman, R.
see **Markowski, E. S.**
Bidwell, R. L.
Design-to-Cost in Action. 77—DE-9.
Bienstock, D.
see **Demeter, J. J.**
Biggs, M. D.
see **Allan, J. J.**
Bigret, R., Borgese, D., Bravin, O., Diana, G., and Serravalli, W.
Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions. 77—DET-148.
Bigret, R., Curami, A., Frigeri, C., and Macchi, A.
Use of In-Field Computer for Balancing High Power Turbo-Machinery. 77—DET-11.
Blanding, K.
Confidence in Fits. 77—DET-130.
Blank, R. W., and Reynolds, D. J.
Wear Test on Coupler Carrier Wear Plates. 77—WA/RT-8.
Bloch, H. P.
Development and Experience with Computerized Acoustic Incipient Failure Detection (IFD) Systems. 77—Pet-2.
Bloom, A. M.
see **Yuan, S. W.**
Blount, F. E.
see **Norris, E. B.**
Bocchicchio, R. L.
see **Roukis, J. G.**
Boehm, A. M.
The Development and Testing of a Regenerable CO_2 and Humidity Control System for Shuttle. 77—ENAs-27.
Boehm, R., Rich, J., Webster, J., and Janke, S.
Thermal Stress Effects and Surface Cracking Associated with Laser Use on Human Teeth. 77—WA/HT-43.
Boenig, F. H.
see **Adams, R. G.**
Bohner, N. D.
see **Brown, K. L.**
Boltshauser, H.
see **Werner, H.**
Bond, C. E.
The Foundations of Appropriate Technology: Values, Technology, and Future Reality. 77—WA/TS-7.
Bonilla, C. F.
see **McAssey, E. V.**
Borgese, D.
see **Bigret, R.**
Borgmeyer, M. E.
see **Zakin, J. L.**
Borio, R. W., Goetz, G. W., and Levasseur, A. A.
Slagging and Fouling Properties of Coal Ash Deposits as Determined in a Laboratory Test Facility. 77—WA/Fu-6.
Bortz, S. A.
see **Larsen, D. E.**
Botkin, M. E.
Optimal Seismic Design of Plane Frames. 77—DET-137.
Bowers, D. A.
An Approach for Determining the Impact of Peak Coolant Temperature on Fusion Reactor Size and Electricity Costs. 77—HT-73.
Bowman, H. F., Woods, M., and Balasubramaniam, T. A.
Determination of Tissue Perfusion from In Vivo Thermal Conductivity Measurements. 77—WA/HT-40.
Boyd, J., and Silver, L. T.
United States Uranium Position. 77—JPGC-NE-25.
Boyd, W. K.
see **Krause, H. H.**
Boyen, J. L.
see **Katz, Y.**
Braun, S., and Datner, B.
Analysis of Roller/Ball Bearing Vibrations. 77—WA/DE-5.
Braun, S. G., and Seth, B. B.
Signature Analysis Methods and Applications for Rotating Machines. 77—WA/Aut-5.
Bravenec, E. V.
A Practical Quality Assurance Manual. 77—PVP-20.
Bravin, O.
see **Bigret, R.**
Breen, D. H.
see **Sharma, V. K.**
Bresnahan, D. L., and Sievers, G. K.
NASA Quiet, Clean General Aviation Turbofan (QCGAT) Program Status. 77—GT-77.
Breugelmans, F. A. E.
The Variable Geometry in Supersonic Compressors. 77—GT-35.
Brewer, J. A., and Anderson, D. C.
A Graphic Man-Computer Environment for Three-Dimensional Engineering Design. 77—DET-117.
Brickell, M. C.
see **Robin, T. T.**
Brigham, W. E.
see **Kuo, M. C. T.**
Britt, E. J.
see **Carnasciali, G.**
Brons, F.
see **Doğru, S.**
Brose, H. F., Stanley, M. D., and LeBlanc, J. C.
A Representative Shuttle Environmental Control System. 77—ENAs-25.
Brown, A.
Boiling Limited Heat Pipes in a Mid-Temperature Range (150 to 300 C). 77—HT-39.
Brown, G. A.
see **Buske, N. L.**
Brown, K. L., and Bohner, N. D.
Valve Wear, Statistically Speaking. 77—DGP-6.
Brown, R. J.
see **Bartells, P. S.**
Buban, E. E., and Gray, R. E.
Emergency Escape Breathing Apparatus for Ships. 77—ENAs-58.
Buckles, H. E.
The Attorney: A Role in Commercial Contracting. 77—IPC-1.
Buckley, S.
see **Jasinski, T.**
Budden, M. J.
see **Novendstern, E. H.**
Budininkas, P.
Removal of Ammonia from Urine Vapor by a Dual-Catalyst System. 77—ENAs-48.
Bulanov, N.
see **Skripov, V.**
Buls, R. L.
Performance Optimization of Existing Gas Pipeline Systems. 77—Pet-85.
Baum, G.
Uranium Solution Mining State of the Art. 77—Pet-47.
Burcham, F. W., Lasagna, P. L., and Kurtenbach, F. J.
Static and Flyover Noise Measurements of an Inverted Profile Exhaust Jet. 77—Gt-81.
Burford, D. L.
see **Callinan, J. P.**
Burgett, A.
Safety Regulation - A Part of the Design Process. 77—RC-17.
Burleson, W. G.
see **Letson, K. N.**
Burmeister, L. C.
see **Smiley, J. A.**
Bushnell, C. M.
see **Cary, A. M.**
Buske, N. L., and Brown, G. A.
Nonlinear Expanders for Diesel-Cycle Application - Part IV: Sealing. 77—DGP-8.
Butterworth, D.
Developments in the Design of Shell-and-Tube Condensers. 77—WA/HT-24.
Buxmann, J., Griepentrog, H., and Weber, D.
Steam and Closed Gas Turbine Cycle. 77—GT-24.

C

Cain, R. W.
see **Murphree, D. L.**
Calhoun, L. D.
see **Peeples, M. E.**
Calhoun, M. B., and Taylor, J. G.
Design Considerations for Surface-Controlled Subsurface Safety Valve Systems. 77—Pet-45.
Callan, P. C.
see **Johnson, L. H.**
Callinan, J. P., and Burford, D. L.
The Analysis of Finned Catalytic Heat Exchangers. 77—HT-67.
Canaras, T.
see **Alario, J.**
Capp, S. P.
see **George, W. K.**
Cardou, A., and Tordion, G. V.
Flat Belt Dynamics, Including Viscoelastic Effects. 77—DET-166.
Carlson, N. G., Robson, F. L., and Westmoreland, J. S.
A Low-Risk Approach to the High-Temperature Turbine. 77—WA/Ener-10.
Carnahan, R. P.
see **Lent, D. E.**
Carnasciali, G., Fitzpatrick, G. O., and Britt, E. J.
Performance and Cost Evaluation for a Thermionic Topping Power Plant. 77—WA/Ener-7.
Carriere, D. L., Rao, V. D., and Vaughen, M. R.
Variable Power Turbine Nozzle System Mechanical Development. 77—GT-105.
Carruthers, W. D., Walker, B. H., and Van-Wanderham, M. C.
Experimental Analysis of a Hybrid Ceramic-Wrought Superalloy Turbine Rotor. 77—GT-7.
Carter, H. R.
see **Oberjohn, W. J.**
Caruthers, G. F.
see **Rodgers, R. C.**
Cary, A. M., Bushnell, D. M., and Hefner, J. N.
Calculation of Turbulent Boundary Layers with Tangential Slot Injection. 77—WA/HT-29.
Caspi, S., Lee, J. Y., and Frederking, T. H. K.
Free Convection of Supercritical Helium-1 in Vertical Insulated Ducts Carrying Axial Heat Flow. 77—HT-8.
Casterline, J. E.
see **Markowski, E. S.**
Catton, I.
see **Rhee, S. J.**
Catz, J.
Hazard Description of Power Lawnmowers. 77—DE-12.
Chaboseau, J.
see **Tilliette, Z. P.**
Chai, D.
see **Katz, S.**
Chai, H. C.
see **Kihara, D. H.**
Chakraborty, J.
Effect of Number of Gashes in Hob on Accuracy of Generated Tooth Profile of Worm Gear. 77—DET-55.
Chan, T. Y., Chen, W. F., and Suzuki, H.
Analysis of Concrete Cylindrical Halls Under Hydrostatic Pressure. 77—PVP-42.
Chang Chai, H.
see **Chai, H. C.**
Chang, E. H.
see **Garg, V. K.**
Chang, K. Y.
see **Kao, G. C.**
Chang, T. Y., Prachuktam, S., and Reich, M.
Assessment of a Nonlinear Structural Analysis Element Program (NONSAP) For Inelastic Analysis. 77—PVP-10.
Chao, E.
see **Haemmerle, J.**
Chao, E. Y., and An, K. N.
Graphical Interpretation of the Solution to the Redundant Problem in Biomechanics. 77—Bio-1.
Chao, E. Y., Wong, H. W., Frain, W. E., and Conventry, M. B.
Stress Analysis of the Geometric Knee Under Static Loading. 77—Bio-6.
Charalambus, B., Weissgerber, J., and Zerrmayr, F.
The Turbine Fatigue and Creep Evaluator. 77—JPGC-Pwr-3.

Cheatham, J. B.
see **Pan, R. B.**
Chen, C.
The SRSS and the Static Coefficient Methods for Seismic Resistant Design of Equipment and Structures. 77—PVP-59.
Chen, C. H., and Seo, S. L.
Space Charge Reduction in EHD Via Fluidic Switching. 77—WA/Ener-3.
Chen, F. Y.
Optimization by Random Perturbation Method with Systematic Reduction of Search Region. 77—DET-9.
Chen, M. M., and Rupinskas, V.
A Simple Method for Measuring and Monitoring Thermal Properties in Tissues. 77—WA/HT-42.
Chen, T. S.
see **Mucoglu, A.**
Chen, W. F.
see **Chan, T. Y.**
Chen, Y. B., and Golay, M. W.
Validation of Turbulence Models for LMFBR Outlet Plenum Flows. 77—HT-34.
Cheng, R. M. H.
Computer Simulation of Fluid Control Circuits. 77—WA/Flcs-6.
Cheng, R. M. H.
see **Katz, S.**
Cheng, R. M. H., and Fahim, A. E. F.
Characteristics of a Novel Pneumatic Stepping Motor. 77—WA/Flcs-7.
Chern, J. M.
see **Wu, C. G.**
Chesmejef, S.
Aerodynamic Testing of a Low Stimulus, Efficient Exhaust Hood - Industrial Turbines. 77—JPGC-Pwr-2.
Chi, J.
DEPAF - A Computer Model for Design and Performance Analysis of Furnaces. 77—HT-11.
Chi Chiang, C.
see **Chiang, C. C.**
Chiang, C. C.
Structural Design Optimization of Once-Through Type Heat Exchangers. 77—JPGC-NE-3.
Chiou, J. P.
The Effect of Nonuniform Fluid Flow Distribution on Thermal Performance of Crossflow Heat Exchanger. 77—WA/HT-3.
Chisholm, D.
see **Grant, I. D. R.**
Cho, S. M.
see **AbuRomia, M. M.**
Cho, S. M.
see **Sawyer, R. H.**
Chowdhury, A. K.
see **Ross, L. W.**
Chuang, M. C.
Transient Temperature Measurement in Moving Fluids. 77—WA/TM-3.
Ciapis, A., Lapini, G., and Rossini, T.
Diagnosis in Operation of Bearing Misalignments in Turbogenerators. 77—DET-14.
Clark, J. A.
see **Ballou, E. V.**
Clark, L. G.
see **Gibson, J. S.**
Clausen, C. W., and Smith, T. F.
Radiative and Convective Transfer for Real Gas Flow Through a Tube with Specified Wall Heat Flux. 77—HT-13.
Cleveland, A. B., and Close, S. A.
Automated Pipe Routing for Minimum Cost. 77—PVP-46.
Close, S. A.
see **Cleveland, A. B.**
Coant, P. M., Davison, A., Fluyt, D., and Kohout, F. C.
Development of Antiwear Cylinder Oil for High Output Crosshead Diesels. 77—DGP-10.
Coban, A.
see **Odgers, J.**
Coccio, C. L.
An Analysis of ERDA's National Energy Plan. 77—WA/TS-2.
Coffay, B., Gerstenkorn, G. F., and Nelson, L. A.
Verification of High Reliability Condenser Design. 77—JPGC-Pwr-14.
Coggin, R. R.
see **Johnson, C. E.**
Colborne, W. G.
see **Sivaram, C.**
Cole, R. M.
see **Robards, R. F.**
Coleman, D. W., Grazzini, E. D., and Hill, L. F.
Testing of FFTF Fuel Handling Equipment. 77—WA/NE-9.
Colombo, G. V., and Putnam, D. F.
Removal of Contaminant Gases from an Electrolytic Urine Pretreatment Process. 77—ENAs-61.
Colsher, R. W., and Stowell, G. W.
Fast Generation and Manipulation of Curved Surfaces. 77—DET-106.
Comassar, S., and Lash, F. B.
The First Year's Operating Experience - GE LM2500 Gas Turbine in USS Spruance (DD-963). 77—GT-107.
Comtois, W. H.
Combustion Turbines - Economic Choice. 77—JPGC-GT-4.
Conkol, G. K., and Singh, T.
An Optimizing Design Point Program for Selection of a Gas Turbine Cycle. 77—GT-108.
Cook, G. E.
see **Merrick, G. J.**
Cook, T. M., Cozzens, B. A., and Kenosian, H.
Real-Time Force Line Visualization: Bioengineering Applications. 77—WA/Bio-6.
Cooke, R. F.
Short Time Dynamic Elastic-Plastic Response of a Beam Due to a Time Varying Transverse Load with Application to Pipe Whip. 77—PVP-56.
Cooper, D. L.
see **Fox, M.**
Copeland, R. J., Jaax, J. R., and Proctor, B. W.
Food and Medical Sample Freezer Kit Concept for Shuttle. 77—ENAs-23.
Corman, J. C.
see **Shah, R. P.**
Cornell, A. D.
Mechancial Systems for Handling Drill Pipe, Riser and Casing. 77—Pet-77.
Corpora, C. J.
see **Battaglia, J. A.**
Costantino, C. J.
see **Miller, C. A.**
Costello, R. M., Giramonti, A. J., and Smith, J. W.
Conceptual Design of a Coal-Fueled, Fluid Bed Combined Cycle Power Plant. 77—WA/Ener-11.
Coulter, D. M.
Economic Analysis of Cryogenic Pipelines for Arctic Resource Recovery. 77—Pet-8.
Coventry, M. B.
see **Chao, E. T.**
Cozzens, B. A.
see **Cook, T. M.**
Cravalho, E. G.
see **Tell, N. E.**
Crawford, J. W.
A Rotating High Pressure Water Condenser and Separator. 77—ENAs-10.
Crawford, M.
Transient Conduction in the Space Surrounding a Ring of Holes. 77—WA/HT-12.
Crisp, J. N.
see **Makefkey, E. T.**
Crooker, T. W.
Optimizing Crack Growth Resistance in Engineering Alloys. 77—DE-17.
Crosby, J., and Baxter, W.
Computer-Aided Pipeline Scheduling. 77—Pet-34.
Crouchley, A. B.
see **Assard, D. G.**
Culver, G. G.
see **Fukuda, M.**
Cunningham, W. C., and Smith, D. K.
Cementing Through Permafrost Environment. 77—Pet-37.
Curami, A.
see **Bigret, R.**
Curry, C. E.
Life Cycle Cost as a Propulsion System Design Consideration. 77—GT-99.
Curtis, D. M., and Berger, B. S.
Optimum Design of the Homogeneous Plane-Stress Flywheel. 77—DET-112.

D

Daimon, Y.
see **Takebe, F. K.**
Daniel, K. J., Laurendeau, N. M., and Incropera, F. P.
Prediction of Radiation Absorption and Scattering in Turbid Water Bodies. 77—HT-47.
Daniels, D. J., and Sieker, W. D.
Rain Erosion Considerations for Launch Vehicle Insulation Systems. 77—ENAs-15.
Danilov, N.
see **Skripov, V.**
Das, A. K., and Anderson, D. E.
A Review of Various Aspects of Design of a Circular Saw for Efficient Energy Use. 77—DE-47.
Datner, B.
see **Braun, S.**
Daugas, C. F.
Diesel and Dual Fuel Engines with Heat Recovery. 77—DGP-20.
Davidson, B. G.
see **Kanewske, F. J.**
Davis, D. A.
see **Johnson, C. E.**
Davis, L. K.
see **Zauderer, B.**
Davis, R. A.
A Design Procedure for Printed Wiring Boards. 77—DET-110.
Davis, R. W.
see **Mattingly, G. E.**
Davis, S. H.
KO_2 Reactions with CO_2 and H_2O in Air. 77—ENAs-12.
Davis, S. H., and Kissinger, L. D.
CO_2 and Humidity Removal System for Extended Shuttle Missions: CO_2, H_2O, and Trace Contaminant Equilibrium Testing. 77—ENAs-4.
Davison, H.
see **Coant, P. M.**
Dawson, A. B. C.
see **Han, J. T.**
Dawson, C. W.
The Application of Medium-Speed Diesel Engines to Sub-Zero Ambient Temperature Locations. 77—DGP-19.
Day, W. H.
see **Sheldon, R. C.**
Dean, J. K.
see **Mallow, W. A.**
Dean, J. W.
see **Hoffer, J. K.**
De Choudhury, P., Zsolcsak, S. J., and Barth, E. W.
Coupling Selection for Synchronous Motor Drive Systems. 77—DET-131.
DelValle, R. J.
see **Wehrfritz, T. J.**
Demeter, J. J., Bienstock, D., McCann, C. R., Bellas, G. T., and Ekmann, J. M.
Combustion of Coal-Oil Slurry in a 100-HP Firetube Boiler. 77—WA/Fu-5.
Demetriades, S. T.
see **Markham, D. M.**
Demmon, T. R.
see **Kuragian, G. M.**
De Morais, G. A.
see **Al-Qureshi, H. A.**
Denio, L. L., Knowlton, D. E., and Volland, E. E.
Control of Nuclear Fuel Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolities. 77—JPGC-NE-15.
Desai, P. V., and Wood, J. L.
Design and Dynamic Performance of a Hydromechanical Impact Breaker. 77—WA/Flcs-3.
Deshpande, A. S.
"CANWEL" - A Canadian System for Domestic Waste Management and Energy Reclamation. 77—WA/Fu-2.
Deshpande, R. B.
A Comparison of Two Computational Procedures Applied to Turbomachinery Flows. 77—FE-14.
Deslouis, C., Epelboin, I., Tribollet, B., and Viet, L.
Use of Electrochemical Methods for the Study of Mass Transfer and Drag Reduction in Polymer Solutions Close to a Wall. 77—FE-32.
Devine, M. J.
see **Peterson, M. B.**
De Vries, G. H., and Kerr, C. N.
Improvement of Coupling-up Performance in Automatic Marshalling Yards: a Simulation. 77—RT-8.
Dewey, C. F.
see **Pitts, W. H.**

DeWitt, D. P.
see **Overmyer, K. M.**
Dharan, C. K. H.
The Fatigue Behavior of Fiber-Reinforced Polymers and Advanced Composites. 77—DE-41.
Dhir, V. K., and Purohit, G. P.
Subcooled Film-Boiling Heat Transfer from Spheres. 77—HT-78.
Dhir, V. K.
see **Rhee, S. J.**
Diana, G., Falco, M., and Gasparetto, M.
On the Flutter Instability of a Suspension Bridge Using the Finite Element Method. 77—DET-140.
Diana, G.
see **Bigret, R.**
Dietz, D.
see **AbuRemia, M. M.**
Diller, K. R.
see **Green, D. M.**
Diller, K. R.
see **Ross, D. C.**
Dilpare, A. L.
see **Talwar, R.**
Dimarogonas, A. D.
Flow of Friction Heat and Design Temperatures at Sliding Contacts. 77—DET-113.
Dinger, H.
Development of the MTU 956/1163 Twin Engine Family. 77—DGP-17.
Di Pasquantonio, F.
see **Bachschmid, N.**
DiPippo, R., Kestin, J., and Khalifa, H. E.
Hybrid Fossil-Geothermal Power Plants. 77—WA/Ener-2.
Dix, G. E.
see **Saha, P.**
Dodson, J. C.
see **Roach, J. D.**
Dogru, S., Lesso, W. G., and Brons, F.
Optimum Development of Offshore Oilfield Operations. 77—Pet-50.
Doherty, M. C.
Investment Economics of Industrial Gas Turbines. 77—GT-26.
Donaldson, A. B., Alcone, J. M., and Schimmel, W. P.
Effective Thermal Diffusivity for a Two-Layer Composite Wall Subject to Periodic Boundary Conditions. 77—WA/Sol-10.
Doty, L. F.
see **Kraus, A. D.**
Douara, S., and Howell, J. R.
An Approximate Solution for the Energy Equation with Radiant Participating Media. 77—HT-70.
Dougall, R. S.
see **Baum, A. J.**
Dove, R. C.
see **Bennett, J. G.**
Drake, M. L., and Sharp, J. D.
An Example of Additive Damping as a Cost Savings Alternative to Redesign. 77—WA/GT-2.
Drake, M. L.
see **Sharp, J. D.**
Drosjack, M. J., and Heuser, D. R.
An Experimental and Theoretical Study of the Effects of Simulated Pitch Line Pitting on the Vibration of a Geared System. 77—DET-123.
Dubner, R. M.
The Catastrophic Failure of a Three-Bearing Steam Turbine-Generator Set. 77—Pet-7.
Duleba, G. S., and Lloyd, A. J. P.
Modeling Heat Exchangers as Part of a Large System Simulation. 77—ENAs-9.
Durocher, L. L., Kosh, W. S., and Wongphadung, S.
Design Considerations in Force-Deflection Relations of Cantilever Beams. 77—DE-50.
Dutina, D.
see **Rodgers, D. N.**
Duzy, A. F.
see **Suydam, C. D.**

E

Earnheart, B. G.
The Past, Present and Future of Section X of the ASME Boiler and Pressure Vessel Code. 77—PVP-21.
Eason, E. D.
Validity of Colville's Time Standardization for Comparing Optimization Codes. 77—DET-116.
Eckels, P. W.
Contact Conductance of Mechanically Expanded Plate Finned Tube Heat Exchangers. 77—GT-24.
Eckels, P. W., and Ying, A. S.
A Helium Cooling System for Large Superconducting A.C. Generators. 77—WA-HT-36.
Eckerle, W. A.
see **Felix, M. P.**
Eckert, H.
see **Spintig, J.**
Efferding, L. E., and Hwang, J. Y.
Experimental Evaluation of Duplex Tube Heat Transfer Characteristics Simulating Steam Generator External Heating. 77—JPGC-NE-9.
Eghbali, B., and Kane, T. R.
Experimental Investigation of Performance Characteristics of Flexible Shaft Couplings. 77—DET-129.
Eiber, R. J.
see **Wilkowski, G. M.**
Ejima, S.
see **Takebe, F. K.**
Ekman, S.
see **Werner, H.**
Ekmann, J. M.
see **Demeter, J. J.**
El-Ariny, A. S.
see **Aziz, A.**
Eldridge, J. L., and McDonald, A. T.
In Vivo Pressure Activity in the Canine Vas Deferens. 77—WA/Bio-7.
Elzoghby, A. A.
see **Shawki, G. S. A.**
Emerson, P. D., Bailey, J. R., and Cooper, W. D.
Economic Impact of a 90 dBA Noise Standard on Textile Spinning Operations. 77—RC-15.
Epelboin, I.
see **Deslouis, C.**
Erdman, A. G., and Gustafson, J. E.
LINCAGES: Linkage INteractive Computer Analysis and Graphically Enhanced Synthesis Package. 77—DET-5.
Erickson, A. C., and Russell, J. H.
Development Status of a Preprototype Water Electrolysis System. 77—ENAs-34.
Ermakov, G.
see **Skripov, V.**
Errichello, R.
see **Rouverol, W. S.**
Essary, J. D.
see **Wazyniak, J. A.**

F

Fabian, J. M., and Oates, G. C.
Analysis of Flows within Particle Separators. 77—WA/FE-21.
Faeth, G. M.
see **Liburdy, J. A.**
Fahim, A. E. F.
see **Cheng, R. M. H.**
Fahmy, M. A. K.
see **Attia, A. Y.**
Fairchild, R. C., Anderson, B. H., and Frederick, J. R.
Synthetic Aperture Ultrasonic Inspection of Pressure Vessels and Piping. 77—PVP-23.
Falco, M.
see **Diana, G.**
Farassat, F.
see **Pegg, R. J.**
Faulkner, L. L., and Hamilton, J. F.
Vibration and Noise Reduction of Beams and Plates by Use of Boundary Damping and Stiffness. 77—DET-155.
Fawcett, J. N.
see **Turnbull, S. W.**
Fehring, T. H.
see **Gaggioli, R. A.**
Feingold, A.
Legal and Psychological Incentives and Deterrents to Recycling. 77—RC-6.
Feingold, A.
see **Soliman, H. M.**
Feldman, K. T.
see **Lu, D. C.**
Felix, M. P., and Eckerle, W. A.
Design of an Elastic Wind Tunnel Model of a Tall Office Building Using a Finite Element Computer Code. 77—WA/DE-6.
Ferrara, P. L.
Vibrations in Very High Pressure Centrifugal Compressors. 77—DET-15.
Fessler, H., Hyde, T. H., and Webster, J. J.
Prediction of Creep Rupture of Pressure Vessels. 77—PVP-54.
Fighetti, C. F.
see **Lawrence, F. D.**
Fillo, J. A., Powell, J., and Yu, W. S.
Thermal-Hydraulic Analysis of Low Activity Fusion Blanket Designs. 77—HT-85.
Fink, H. I.
see **Miller, C. A.**
Firbank, T. C.
On the Forces Between the Belt and Driving Pulley of a Flat Belt Drive. 77—DET-161.
Fitch, E. C.
see **Surjaatmadja.**
Fitts, J. R.
see **Houlihan, T. M.**
Fitzpatrick, G. O.
see **Carnasciali, G.**
Flach, W. T.
Effects of Construction Practices on the Ultrasonic Inspectability of Piping Welds. 77—PVP-15.
Fleming, D. P.
High Stiffness Seals for Rotor Critical Speed Control. 77—DET-10.
Fluyt, D.
see **Coant, P. M.**
Foerster, S.
see **Hewing, G.**
Fopiano, P. J., and Kula, E. B.
Heat Treatment, Structure, and Properties of Standard and Modified Vasco X-2 Carburizing Grade Gear Steels. 77—DET-151.
Forest, T. W., and Ward, C. A.
Homogeneous Nucleation of Bubbles at Negative Superheats. 77—HT-58.
Foster, C. B.
ERDA's Coal-Oil Mixture Combustion Program. 77—WA/Fu-4.
Fox, M., Warren, W. B., and Copper, D. L.
Deep Water Position Measuring System for Dynamically Positioned Ships. 77—Pet-39.
Frain, W. E.
see **Chao, E. Y.**
France, D. M.
see **Wolf, S.**
Frankenberg, T. T.
see **Kramer, M. L.**
Franks, S. H.
see **West, S. J.**
Frant, M. S.
see **West, S. J.**
Frederick, J. R.
see **Fairchild, R. C.**
Frederking, T. H. K.
see **Caspi, S.**
Freeman, J. A.
see **Smith, P. R.**
Freeze, H. L.
see **Mende, H.**
Freezor, M. D.
see **Johnson, C. E.**
Frei, O.
Design and Manufacture of a Gas Turbine Rotor for Temperature and Vibration Measurements. 77—GT-54.
French, R. J.
see **Williams, J. L.**
Friedlein, T. F., McClurken, W. H., and Reid, S. E.
A Systematic Application of Energy Conservation Measures at a Petrochemicals Plant. 77—IPC-Pwr-9.
Friedman, G.
Physical Plant Design - Large Single Train Petrochemical Plants - Arriving at Tomorrow's Concepts. 77—Pet-6.
Friedrick, C. M.
see **Jones, D. P.**
Frigeri, C.
see **Bigret, R.**
Fromnes, D. J.
see **Johnson, C. E.**
Frost, R. F.
U.S. Army Field Medical Equipment Developments for Cold Region Operations. 77—ENAs-56.
Fruman, D. H., and Tulin, M. P.
Effects of Additive Ejection on Lifting Hydrofoils. 77—FE-27.
Fuchs, R., and Starken, H.
Experimental Investigations of Supersonic Casades Designed for High Static Pressure Ratios. 77—GT-37.

Fujita, K., Yoshida, A., and Obata, F.
Difference Between Rolling Fatigue Behaviors of Surfaces Hardened and of Soft Steel Rollers. 77—DET-57.
Fukuda, M., Culver, G. G., Kreitlow, D. B., and Reistad, G. M.
Natural Convection Heat Transfer Models for Downhole Heat Exchanger Applications in Shallow Geothermal Systems. 77—HT-55.
Fukuda, M.
see **Miyoshi, E.**

G

Gaggioli, R. A., and Fehring, T. H.
Economic Analysis of Boiler Feed Pump Drive Alternatives. 77—JPGC-Pwr-8.
Galabov, W. B., and Konstantinov, M. S.
Geometric Characteristics, Design and Manufacturing of Non-Circular Gears. 77—DET-177.
Galloway, T. L.
A Study of Commuter Aircraft Design. 77—GT-36.
Galloway, W. J., Wilby, J. F., and True, H. C.
Noise Reduction Potential for the Existing Business Jet Fleet. 77—GT-76.
Gamble, B. B.
The Development of a Rotating Liquid Helium Flow Circuit. 77—WA/HT-37.
Gardner, D.
see **Reich, M.**
Garg, D. P.
Wheelset Lateral Dynamic Analysis Using the Describing Function Technique. 77—DET-149.
Garg, V. K., Hawthorne, K. L., Chang, E. H., and Hartman, P. W.
Development of a Simulation Methodology for Optimizing Locomotive Suspension Systems. 77—RT-6.
Garrett, R. E.
see **White, P. R.**
Gartner, J. R.
see **Marshek, K. M.**
Gasparetto, M.
see **Diana, G.**
Gatley, W. S.
Noise Control by Regulation - An Engineering Challenge. 77—RC-16.
George, W. K., and Capp, S. P.
Natural Convection Turbulent Boundary Layers Next to Heated Vertical Surfaces. 77—WA/HT-32.
Gerbert, G.
A Complementary Large Slip Solution in V-belt Mechanics. 77—DET-162.
Gerken, J. H.
see **Storms, M. A.**
Gerrels, E. E.
see **Magee, P. M.**
Gerstenkorn, G. F.
see **Coffay, B.**
Geurts, F. W.
Bevel Gear Differentials for Industrial Applications. 77—DET-159.
Ghuman, A. S., Iwamuro, M. A., and Weber, H. G.
Turbocharged Diesel Engine Simulation to Predict Steady-State and Transient Performance. 77—DGP-5.
Gibson, J. S., and Clark, L. G.
Correction of Optimal Parameters in Systems with Small Dealys. 77—WA/Aut-7.
Gieske, J. H.
Ultrasonic Data Acquisition, Analysis, and Display by Minicomputer Aided Techniques. 77—PVP-45.
Gilbert, N., and Handman, S. E.
A Continuous Recirculation System for In-Bin Blending of Granular Solids. 77—Pet-63.
Giramonti, A. J.
see **Costello, R. M.**
Giramonti, A. J.
see **Johnson, B. V.**
Godet, M.
see **Rozeanu, L.**
Goetz, G. W.
see **Borio, R. W.**
Golay, M. W.
see **Chen, Y. B.**
Golay, M. W.
see **Guyer, E. C.**
Goldberg, J.
see **Lubin, B. T.**
Goldberg, J. E.
see **Pathak, D. V.**
Goldman, D.
see **Kunze, J. F.**
Goldsmith, R. L.
see **Greenough, B. M.**
Goodling, E. C.
The Trailing Shoe Type Centrifugal Clutch-Design Principles and Characteristics. 77—DET-126.
Goodson, R. W.
Conversion of a Products Pipeline to Crude Oil Batching Operation. 77—Pet-19.
Goodwin, L. G.
see **Guenther, D. A.**
Graebel, W. P., and Van Alphen, G. W. H. M.
The Elasticity of Sclera, Cornea, and Choroid, and Its Implications on Scleral Rigidity and Accommodation. 77—Bio-5.
Grant, I. D. R., and Chisholm, D.
Two-Phase Flow on the Shell-Side of a Segmentally Baffled Shell-and-Tube Heat Exchanger. 77—WA/HT-22.
Grant, M. A.
Permeability Reduction Factors at Wairakei. 77—HT-52.
Gray, R. E.
see **Buban, E. E.**
Grazzini, E. D.
see **Coleman, D. W.**
Green, D. M., and Diller, K. R.
A Technique for the Measurement of Burn Induced Leakage of Macromolecules in Living Tissue. 77—WA/HT-46.
Green, L.
Gas-Turbine Total Energy System for a Cement Plant. 77—GT-22.
Greene, D. A.
see **Magee, P. M.**
Greenough, B. M., and Goldsmith, R. L.
Dynamic Membrane Hyperfiltration Wash Water Recovery. 77—ENAs-21.
Gregory, R.
see **Jacobs, H. R.**
Griepentrog, H.
see **Buxmann, J.**
Greiner, H. F.
see **Ludwig, L. P.**
Grobner, P. J.
see **Straatmann, J. A.**
Groenewold, G. M., Welliver, D. R., and Kamo, R.
Performance and Sociability of Comprex Supercharged Diesel Engine. 77—DGP-4.
Gronseth, J. R.
Promoting Effective Coordination Among Marketing, Engineering and Manufacturing. 77—DE-7.
Grubb, R. L., and Saffell, B. F.
Non-Linear Lateral Mechanical Response of Pressurized Water Reactor Fuel Assemblies. 77—WA/DE-18.
Guenther, D. A., and Goodwin, L. G.
Product Safety and Product Liability: Return to Fundamentals. 77—RC-9.
Guilinger, W. H.
Comparison of Iterative and Direct Solution Methods for Substructing. 77—PVP-36.
Guins, S. G.
Estimating Effect of Heavy Wheel Loads on Rail Life Roller Bearing Analogy. 77—RT-9.
Gumkowski, S.
see **Ihnatowicz, E.**
Gunkel, R. J., and Wolbers, H. L.
A Space Station for the 1980's - A Look at the Next Generation of Operational Systems and Their Functional Requirements. 77—ENAs-37.
Gustafson, J. E.
see **Erdman, A. G.**
Guyer, E. C., and Golay, M. W.
Evaluation of Combined Thermal Storage Pond/Dry Cooling Tower Waste Heat Disposal System. 77—HT-57.

H

Habeck, R.
The Horizontal Plate Filter as a Torsional Vibration System With Vibration Absorption. 77—DET-86.
Haddad, S. D.
Mechanically Induced Noise and Vibration in the Automotive Diesel Engine. 77—DET-37.
Haemmerle, J., Bartel, D., and Chao, E.
Mechanical Analysis of Polycentric Tibial Track Loosening. 77—Bio-7.
Hagemeister, K.
see **Heilmann, W.**
Haji-Sheikh, A.
see **Arledge, R. G.**
Hall, R. E.
see **Hunter, S. C.**
Halle, H., and Lawrence, W. P.
Crossflow-Induced Vibration of a Row of Circular Cylinders in Water. 77—JPGC-NE-4.
Hallick, T. M.
see **Marshall, R. D.**
Halloran, J.
see **Kolodziej, R.**
Halloran, J.
see **Mruk, G.**
Halloran, J. D., Mruk, G., and Kolodziej, R.
The Torsional Response of Compressor Shaft Systems During Synchronous Motor Startup Part III - Abnormal Motor Conditions. 77—Pet-56.
Halter, V. P.
West Coast-Mid-Continent Pipeline Project. 77—Pet-65.
Hamed, A., Sheoran, Y., and Tabakoff, W.
Cooling Considerations for Design of a Radial Inflow Turbine. 77—GT-82.
Hamed, A.
see **Tabakoff, W.**
Hamilton, J. F.
see **Faulkner, L. L.**
Hamilton, R. W.
see **Retallack, L. J.**
Hammock, A. A.
Safe Operation and Control of Large Single Train Petrochemical Plants. 77—Pet-13.
Han, J. T., and Dawson, A. B. C.
A Computer-Aided Feel Cam Design. 77—DE-48.
Handman, S. E.
see **Gilbert, N.**
Hanks, J.
A Study in Pneumatic Brake Selection. 77—DET-127.
Hannemann, R. J.
Recent Advances in Dropwise Condensation Theory. 77—WA/HT-21.
Hansen, A. C.
see **Jacobs, H. R.**
Harris, L. P.
Design and Calculated Performance and Cost of the ECAS Phase II Open Cycle MHD Power Generation System. 77—WA/Ener-5.
Harris, L. R., Schatzberg, P., Bhattacharyya, D., and Jackson, D. F.
Ultrafiltration of Black and Grey Wastewater. 77—ENAs-57.
Harrison, D. G.
see **Woods, R. L.**
Harrison, H. D.
see **Ahlbeck, D. R.**
Hart, F. T.
see **Vanderschmidt, G. F.**
Hart, G. K.
see **Suratt, W. B.**
Hart, R. R., and Weissman, G. F.
A Simple Test of the Effectiveness of Stress Relief Annealing Spring Materials. 77—WA/DE-21.
Hartmann, P. W.
see **Garg, V. K.**
Hartwick, T. J.
Evaluation Techniques - Critical to the Design and Successful Operation of Process Water Reyclce Systems. 77—IPC-Pwr-2.
Haslinger, K. H.
Forced Vibration Testing of a Nuclear Fuel Assembly. 77—DET-141.
Haslinger, K. H.
see **Lubin, B. T.**
Hassaballa, M. M.
see **Meligi, A. E.**
Hassberger, J. A., Romsos, W. N., Thorne, W. L., and Wierman, R. W.
Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers. 77—WA/NE-8.
Hawthorne, K. L.
see **Garg, V. K.**
Hayashi, K., Aiuchi, S., and Van Hien, P.
Bending Fatigue Strength of Gear Teeth under Random Loading. 77—DET-120.
Heard, T. C.
see **Wrenn, K. F.**

Hefner, J. N.
see **Cary, A. M.**
Heilmann, W., and Hagemeister, K.
Small Regenerative Gas Turbine Design and Development at MTU. 77—GT-103.
Heinecke, H. J.
see **Lange, K. H.**
Helfinstine, R. A.
see **Tandberg, R. E.**
Helmich, M. J.
Maintenance and Operation of Nuclear Diesel Generator Systems. 77—DGP-14.
Hendricks, R. C.
Simulation of the Heat Transfer Characteristics of LOX. 77—HT-9.
Hewing, G., and Forster, S.
The Dynamic Behavior of Nuclear Helium Turbine Plants During By-Pass and Pressure Level Control Operations. 77—GT-3.
Hickox, C. E.
see **Schimmel, W. P.**
Hill, L. F.
see **Coleman, D. W.**
Hills, R. G., and Mulholland, G. P.
Heat Transfer in Multiply Connected Regions. 77—WA/HT-15.
Hinkle, S.
see **Schmidt, W.**
Hirokawa, S., Sakai, T., and Maki, M.
A Study on Involute Worm Gearing of Non-Right Axial Angle. 77-DET-36.
Hiura, H.
see **Tsukuda, T.**
Hoffer, J. K., and Dean, J. W.
Propagation of Thermal Waves in Supercritical Helium. 77—HT-76.
Hoffman, M. A.
see **Bender, D. J.**
Hofmeister, R. J.
Insuring Mechanical Integrity of Plastic Enclosures. 77—DE-13.
Hogan, N., and Mann, R. W.
Cybernetic Considerations in the Use of Myoelectric Activity for Prosthesis Control. 77—WA/Bio-10.
Holm, J., and Swearingen, J. S.
The Application of Turboexpanders for Energy Conservation. 77—Pet-17.
Holmes, D. H.
see **Wolf, S.**
Hope, P. M., and Nelson, R. G.
A New Approach to the Design of Wet-Gas Pipelines. 77—Pet-14.
Hoppe, R. G.
see **Jones, D. P.**
Hore, P. S., Krutz, G. W., and Schoenhals, R. J.
Application of the Finite Element Method to the Inverse Heat Conduction Problem. 77—WA/TM-4.
Hosny, W.
see **Tabakoff, W.**
Hottenroth, F. W.
Low Cost Test Procedure for Solar Collectors. 77—WA/Sol-4.
Houlihan, T. M., Schimmels, J. N., and Fitts, J. R.
Turbulence Measurements in Dilute Polymer Wake Flows. 77—FE-31.
Houser, D. R.
see **Drosjack, M. J.**
Hovemeyer, W. E.
see **Lawrence, F. D.**
Howard, P. A., Lorenz, J. J., Howarth, W. L., and Novendstern, E. H.
CRBRP Outlet Plenum Behavior During Steady State and Transient Conditions. 77—HT-32.
Howard, P. A.
see **Lorenz, J. J.**
Howarth, W. L.
see **Howard, P. A.**
Howell, J. R.
see **Douara, S.**
Hoyt, J. W., and Taylor, J. J.
Effect Nozzle Shape and Polymer Additives on Water Jet Appearance. 77—FE-16.
Hsia, E. S.
Effects of Wall Electrical Conductance and Induced Magnetic Field on MHD Channel Heat Transfer with Developing Thermal and Velocity Fields. 77—HT-63.
Hsiao, C. C.
see **Hsiao, C. Y. Y.**
Hsiao, C. Y. Y., Liu, C. H., and Hsiao, C. C.
Prerupture Behavior of Biosystems Under Stress. 77—Bio-3.
Hsu, Y. C.
Forced Oscillation of a Down-hole Hydraulic Fracture. 77—Pet-9.
Huang, C. L. D., and Woo, H. K.
Response of a Finite Thin Cylindrical Shell of Graphite Materials to a Thermal Shock. 77—WA/HT-9
Huang, P. N. S.
see **Yan, M. M.**
Huang, W. C.
Safety and Health Considerations in Handling, Processing and Storage Facilities of Refuse Derived Fuel. 77—RC-11.
Hudson, S. M.
The Shaft Coupled Lift/Cruise Fan Propulsion System for Navy Multimission V/STOL Aircraft. 77—GT-112.
Huffman, F. N., and Miskolczy, G.
Thermionic Energy Conversion Topping System. 77—WA/Ener-6.
Hundal, M. S., and White, B. F.
Computer-Based Rational Design of Strain-Gage Load Cells. 77—DE-40.
Hunsbedt, A., Kruger, P., and London, A. L.
Laboratory Studies of Non-Isothermal Fluid Production from Fractured Geothermal Reservoirs. 77—HT-53.
Hunsicker, J. C.
see **Stehling, S. G.**
Hunter, S. C., Hall, R. E., Sotter, J. G., and Nazimowitz, W.
Evaluation of Two Industrial Boilers with Combustion Modifications for Reduced Pollutant Emissions. 77—WA/APC-1.
Hunter, T. O.
see **Abdel-Khalik, S. I.**
Hunterington, R. A., and Kirk, J. A.
Stress Redistribution for the Multiring Flywheel. 77—WA/DE-26.
Huntington, R. A.
see **Krik, J. A.**
Hwang, C. T., and Yip, F. C.
Advances in Frost Heave Prediction and Mitigation Methods for Pipeline Application. 77—WA/HT-19
Hwang, J. Y.
see **Efferding, L. E.**
Hyde, T. H.
see **Fessler, H.**
Hyman, B., and Saltonstall, R.
The Evolution of Conservation as a Key Element of National Energy Policy. 77—WA/TS-3.

I

Ihnatowicz, E., Gumkowski, S., and Mikielewicz, J.
Experimental Study of Evaporation and Breakdown of Thin Liquid Films Driven by Shear Stresses. 77—WA/HT-7.
Incropera, F. P.
see **Daniel, K. J.**
Inger, G. R.
see **Panaras, A. G.**
Inoue, N., Nakayama, T., and Shimono, M.
Deformation of Polymers During Hydrostatic Extrusion. 77—PVP-39.
Ishibashi, A., Tanaka, S., and Ueno, T.
Super-precision Single-Flank Gear Testing Machine. 77—DET-118.
Ishida, K., and Matsuda, T.
Vibrations on Vibrationless Rotation-Reciprocation Internally Geared Device, and on Vibrationless Chain Saw Utilizing This Device. 77—DET-157.
Ishihara, K., Palen, J. W., and Taborek, J.
Critical Review of Correlations for Predicting Two-Phase Flow Pressure Drop Across Tube Banks. 77—WA/HT-23.
Ishikawa, J.
see **Tanaka, K.**
Ito, Y., Toyoda, J., and Nagata, S.
Interface Pressure Distribution in a Bolt-Flange Assembly. 77—WA/DE-11.
Itoh, M.
see **Matsuki, M.**
Iwamuro, M. A.
see **Ghuman, A. S.**
Iwatsubo, T., Kawahara, I., Nakagawa, N., and Kawai, R.
Reliability of a High Speed Rotating Machine Subjected to Earthquake Excitation. 77—DET-12.
Iyengar, S. K. R., and Sharp, R. F.
The Effects of Particulate Contaminants on the Static Characteristics of Fluid Power Relief Valves. 77—DE-20.
Iyengar, S. K. R.
Some Advances in Evaluating the Effects of Contaminant Lock in Fluid Power Spool Valves. 77—DE-3.

J

Jaax, J. R.
see **Copeland, R. J.**
Jackson, D. F.
see **Harris, L. R.**
Jacobs, H. R.
Evaluation and Design Considerations for Liquid-Liquid Direct Contact Heat Exchangers for Geothermal Applications. 77—HT-2.
Jacobs, H. R., Plass, S. B., Hansen, A. C., and Gregory, R.
Operational Limitations of Direct Contact Boilers for Geothermal Applications. 77—HT-5.
Jagow, R. B., Katan, T., Lamparter, R. A., and Ray, C. D.
Investigation of Low Temperature Carbon Monoxide Oxidation Catalysts. 77-ENAs-28.
Jain, K. K.
Chemical Flocculation of Complex Oily Wastewaters. 77—ENAs-38.
Jain, S. C.
Attributes of an Ideal Water-Base, Non-polluting Hot Forging Lubricant. 77—Lub-33.
Jaisingh, G.
see **AbuRomia, M. M.**
Jakubowski, G. S., and John, J. E. A.
The Effects of Bedding Materials on Boiling Heat Transfer. 77—HY-26.
Janke, S.
see **Boehm, R.**
Jarvis, J. L.
see **Palmer, R. S. J.**
Jasinski, T., and Buckley, S.
Thermosyphon Analysis of a Thermic Diode Solar Heating System. 77—WA/Sol-9.
Jebens, H. J., and Johnson, R. D.
Water and Waste Water Reclamation in a 21st Century Space Colony. 77—ENAs-47.
Jebens, H. J.
see **Johnson, R. D.**
Jellison, J. L.
Gas Pressure Bonding of Stratapax. 77—Pet-72.
Jendrzejczyk, J. A.
see **Shin, Y. S.**
Jennings, K. E.
Decometer: A Microprocessor-Based Decompression Computer for Divers. 77—WA/OCE-8.
Jensen, F. C.
see **Lantz, J. B.**
Jensen, J. E., and Minati, K. F.
The Evolution of a Cryogenic Enclosure for a Superconducting Power Transmission Cable. 77—HT-75.
Johannsen, K.
see **Ramm, H.**
John, J. E. A.
see **Jakubowski, G. S.**
Johnson, B. V., Giramonti, A. J., and Lehman, S. J.
Effect of Water-Cooling Turbine Blades on Advanced Gas Turbine Power Systems. 77—GT-80.
Johnson, C. E., Davis, D. A., and Coggin, R. R.
Experimental Evaluation and Analysis of Thermistor Probes for Recording Clinical In Vivo Temperatures. 77—WA/HT-41.
Johnson, C. E., Fromnes, D. J., and Freezor, M. D.
Numerical Linearization of Thermistor Bridge Circuits for In Vivo Medical Research. 77—WA/Bio-14.
Johnson, K. L., Nuccio, P. P., and Reveley, W. F.
Improved Waste Water Vapor Compression Distillation Technology. 77—ENAs-20.
Johnson, L. H., Callan, P. C., and Kure-Jensen, J.
Designing for Reliability the Large Steam Turbine Mark II Control System. 77—JPGC-Pwr-4.
Johnson, R. D., Jebens, H. J., and Sweet, H. C.
A Closed Life-Support System for Space Colonies. 77—ENAs-18.
Johnson, R. D.
see **Jebens, H. J.**

Jolles, M. I.
see **Smith, C. W.**
Jones, A. H.
see **Abou-Sayed, A. S.**
Jones, D. I. G., and Muszyńska, A.
Effect of Slip on Response of a Vibrating Compressor Blade. 77—WA/GT-3.
Jones, D. L.
see **Allsopp, L. E.**
Jones, D. P., Friedrich, C. M., and Hoppe, R. G.
A Cycle Counting Procedure for Fatigue Failure Predictions for Complicated Multi-Axial Stress Histories. 77—PVP-29.
Jones, O. C., and Zuber, N.
Post-CHF Heat Transfer: A Non-Equilibrium, Relaxation Model. 77—HT-79.
Jones, R. R.
see **O'Brien, W. F.**
Joshi, D. S.
see **Torda, T. P.**
Jude, P.
see **Tilliette, Z. P.**
Juris, K.
The Effectiveness of Flue Gas Desulfurization Systems in Reducing Power Plant Ambient Air Quality Impacts. 77—JPGC-Pwr-6.

K

Kakad, Y. P., and Mahig, J.
Optimization of a Non-Linear Torsional Mechanical System. 77—DET-107.
Kaliski, E. J.
The Protection of Intellectual Property - A Design Function. 77—DET-111.
Kamijo, K., Shimura, T., and Watanabe, M.
An Experimental Investigation of Cavitating Inducer Instability. 77—WA/FE-14.
Kamo, R.
see **Groenewold, G. M.**
Kane, T. R.
see **Eghbali, B.**
Kanewske, F. J., and Davidson, B. G.
People Oriented Program Saves Energy in a Large Petroleum Refinery. 77—Pet-55.
Kannel, J. W.
Vapor Deposited Transducers for Measuring Pressure and Temperature in Machine Elements. 77—DE-33.
Kao, G. C., Yen, H. H., and Chang, K. Y.
Evaluation of Scale-Model Methods for Operability Qualification of Seismic Category I Pumps and Valves. 77—PVP-58.
Kasiwagi, T.
see **Quintiere, J.**
Kasten, P. R., McNeese, L. E., and Bartine, D. E.
Use of Thorium in Power Reactors. 77—JPGC-NE-24.
Katan, T.
see **Jagow, R. B.**
Katz, S., and Chai, D.
Column Separation as a Feedback Mechanism in Liquid Oscillators. 77—WA/FIcs-4.
Katz, S., and Cheng, R. M. H.
A Network Approach to Brake Pipe Leakage. 77—WA/FIcs-10.
Katz, Y., and Boyen, J. L.
Design Considerations for Heat Recovery System for DD-963 Class Ship. 77—GT-106.
Kaupang, B. M., and Marsh, W. D.
A New Approach to Planning with Gas Turbines. 77—JPGC-GT-3.
Kawahara, I.
see **Iwatsubo, T.**
Kawai, R.
see **Iwatsubo, T.**
Kear, E. B., Jr., and Kear, E. B., III.
The Effect of Certain Major Parameters on the Annual Effectiveness of Solar Systems for Residential Dwellings. 77—WA/Sol-3.
Kear, E. B., III.
see **Kear, E. B., Jr.**
Kelley, W. H.
see **Skladany, J. T.**
Kennedy, L. A., and Thomas, P. J.
Optical Temperature Measurements in Porous Media. 77—HT-89.
Kenosian, H.
see **Cook, T. M.**
Kent, G. R.
Working with Multi-Component Mixtures. 77—Pet-15.
Kentfield, J. A. C.
A New Light-Weight Warm-Air Blower for Rapidly Pre-Heating Cold-Soaked Equipment. 77—WA/HT-20.
Kenyon, D. J.
see **Retallack, L. J.**
Kerpestein, J. B.
Propulsion Gearing Transmission Systems for Guided Missile and Standard Frigates of the Royal Netherlands Navy. 77—GT-67.
Kerr, A. J.
Controlling Slack Action in a Unit Train. 77—RT-12.
Kerr, C. N.
see **De Vries, G. H.**
Kestin, J.
see **DiPippo, R.**
Keyser, D. R.
Laser Flow Measurement. 77—WA/FM-2.
Khalifa, H. E.
see **DiPippo, R.**
Kibbey, A. H.
Summary of the ORNL-Sponsored Reactor Radwaste Management Workshop. 77—JPGC-NE-14.
Kihara, D. H., Chai, H. C., and Shimozono, G. S.
A Parametric Study of a Heat Exchanger Designed for Geothermal Power Plant Application. 77—HT-1.
Killman, I.
see **Tholen, P.**
Kim, Y. S., and Zellmer, J.
Derivation of Cost Factor for Novel Mining Energy Source Minerals. 77—Pet-46.
Kind, R. W., and Ruhe, A.
Tubular Gas Turbine Recuperators. 77—WA/HT-8.
Kirk, J. A., and Huntington, R. A.
Stress Analysis and Maximization of Energy Density for a Magnetically Suspended Flywheel. 77—WA/DE-24.
Kirk, J. A.
see **Huntington, R. A.**
Kissinger, L. D.
see **Davis, S. H.**
Kleiner, G. N., and Thompson, C. D.
Regenerative Life Support Evaluation. 77—ENAs-35.
Kliger, H. S.
Simplified Design with Graphite Reinforced Plastics. 77—DE-14.
Knoebel, D. H., and Yen, Y. C.
The Effect of Artificial Surface Projections on Film-Boiling Heat Transfer. 77—HT-81.
Knowlton, D. E.
see **Denio, L. L.**
Kohler, M., and Walzer, P.
Influences on the Fuel Economy of an Automotive Gas Turbine. 77—GT-92.
Kohout, F. C.
see **Coant, P. M.**
Kojima, M.
The Geometrical Analysis on Gear Skiving of Internal Gears. 77—DET-133.
Kollrack, R., and Aceto, L. D.
Radical Overshoot Phenomena in Liquid Fueled Gas Turbine Combustors. 77—GT-5.
Kolodziej, R., Halloran, J., and Mruk, G.
The Torsional Response of Compressor Shaft Systems During Synchronous Motor Startups Part II - Field Measurement Techniques. 77—Pet-60.
Kolodziej, R.
see **Halloran, J. D.**
Kolodziej, R.
see **Mruk, G.**
Konstantinov, M. S.
see **Galabov, W. B.**
Kooker, D. E., and Nelson, C. W.
Numerical Solution of Solid Propellant Transient Combustion. 77—HT-17.
Kosh, W. S.
see **Durocher, L. L.**
Koury, A. J.
see **Peterson, M. B.**
Kouwen, N.
see **Weaver, D. S.**
Kowalski, J.
Optimal Synthesis of Double Reduction Bevel/Helical Gear Units by Nonlinear Programming. 77—DET-172.
Kowalski, J.
Optimal Synthesis of Double Reduction Helical Gear Units by Nonlinear Programming. 77—DET-171.
Krämer, E.
Computation of Unbalance Vibrations of Turborotors. 77—DET-13.
Kramer, M. L., Martin, J. R., and Frankenberg, T. T.
Ambient Ground-Level Sulfur Dioxide Concentrations in the Vicinity of a Multiple Stack Power Plant During and After Operation. 77—WA/APC-4.
Kramer, T. J.
Thermal Control Design and Performance of Air Force Satellite STP P72-1. 77—ENAs-41.
Krapp, R.
see **Bammert, K.**
Krase, J. M.
see **McDonald, C. F.**
Kraus, A. D., Snider, A. D., and Doty, L. F.
Analysis of Arrays of Extended Surface. 77—HT-31.
Krause, H. H., Vaughan, D. A., Sexton, R. W., and Boyd, W. K.
Erosion-Corrosion Effects on Boiler Tube Metals in a Multisolids Fluidized-Bed Coal Combustor. 77—WA/CD-1.
Krauter, A. I., and Waldron, W. D.
Application of Simulation Cost Modelling to Railroad Roller Bearing Usage. 77—RT-7.
Kreith, F.
see **Bakke, E.**
Kreitlow, D. B.
see **Fukuda, M.**
Krishnamurthy, R., and Venkatesh, V. C.
On the Surface Durability of Gears. 77—DET-58.
Kroenke, W. C.
see **Reddy, V. S.**
Krol, J.
The Use of Capital-Labor Ratio in the Design of Large-Scale Systems. 77—DE-38.
Kruger, P.
see **Hunsbedt, A.**
Kruger, P.
see **Kuo, M. C. T.**
Krulis, C. E., and Lastella, J.
Gas Turbine Salt Ingestion Analysis. 77—GT-20.
Krutz, G. W.
see **Hore, P. S.**
Kubanek, G. R., and Miletti, D. L.
Evaporative Heat Transfer and Pressure Drop Performance of Internally-Finned Tubes with Refrigerant 22. 77—WA/HT-25.
Kubo, L. Y.
see **Ballou, E. V.**
Kula, E. B.
see **Fopiano, P. J.**
Kulacki, F. A.
see **Velkoff, H. R.**
Kumar, T. C. M.
see **Varghese, G.**
Kumar, V.
see **Singh, A. K.**
Kunze, J. F., Stoker, R. C., and Goldman, D.
Heat Transfer in Formation as a Geothermal Reservoir Engineering Tool. 77—HT-88.
Kunze, J. F.
see **Swanson, S. R.**
Kuo, M. C. T., Kruger, P., and Brigham, W. E.
Shape-Factor Correlations for Transient Heat Conduction from Irregular-Shaped Rock Fragments to Surrounding Fluid 77—HT-54.
Kurajian, G. M., Na, T. Y., and Demmon, T. R.
On Elasto-Plastic Column Design. 77—WA/DE-17.
Kure-Jensen, J.
see **Johnson, L. H.**
Kuroda, S.
see **Battaglia, J. A.**
Kurtenbach, F. J.
see **Burcham, F. W.**
Kwan, C. T.
Fatigue Analysis for Lattice Legs of Jack-Up Drilling Platforms. 77—Pet-11.
Kwok, C. C. K.
see **Lee, P. M.**

L

Labra, J. J., and Talapatra, D. C.
Application of a Finite Element Computer Program for Investigating Failure Mechanisms in Military Ammunition. 77—WA/DE-20.
Lamparter, R. A.
see **Jagow, R. B.**

Lance, N.
see **Snumar, J. W.**
Lancey, T. W.
Quiet Vent Valve Design and Airborne Noise Spectra. 77—WA/Flcs-12.
Lane, D. F.
Improving Productivity in the Third Century. 77—WA/Mgt-2.
Lane, R. K.
see **Merrill, R. H.**
Lane, W. R.
Factors Detrimental to Electrostatic Precipitator Performance. 77—WA/APC-7.
Lang, R. P.
see **Wrenn, K. F.**
Lange, K. H., and Heinecke, H. J.
Gas Turbine Power Plants of Large Unit Capacity in Standard Construction. 77—GT-21.
Langhorst, F. E., and Anderson, D. C.
Structural Modeling Graphics: An Aid to Understanding Complex Design Problems. 77—DET-6.
Lantz, J. B., Winkler, H. E., Schubert, F. A., and Jensen, F. C.
Development of an Advanced Combined Iodine Dispenser/Detector. 77—ENAs-30.
Lantz, J. B.
see **Shumar, J. W.**
Lapini, G.
see **Clapis, A.**
Lard, E. W.
see **Van Hees, W.**
La Rosa, J. A.
see **Ortolano, R. J.**
Larsen, D. C., Bortz, S. A., and Ruh, R.
Strength Characterization of Various Silicon Base Turbine Materials. 77—WA/GT-4.
Lasagna, P. L.
see **Burcham, F. W.**
Lash, F. B.
see **Comassar, S.**
Lastella, J.
see **Krulls, G. E.**
Launder, B. E.
see **Sharma, B. I.**
Laura, P. A. A., Luisoni, L. E., and Steinberg, D. S.
Vibrations of Beams and Plates with Edges Elastically Restrained Against Rotation Carrying Elastically Mounted Masses. 77—DET-87.
Laurendeau, N. M.
see **Daniel, K. J.**
Lawit, R. L., Sheth, P. R., and Stoudt, R. A.
Specifics of Heat Exchanger Design for a 2000-MWt Dual Cycle, MHD Topping-Steam Bottoming Power Plant. 77—HT-61.
Lawrence, F. D., Woodman, B. W., Fighetti, C. F., and Hovemeyer, W. E.
Critical Heat Flux in PWR Fuel Assemblies. 77—HT-92.
Lawrence, W. P.
see **Haile, H.**
Lawton, C. W.
Special Considerations for Strain Hardening Materials in High Cycle Fatigue. 77—PVP-33.
Lazzeri, L.
A Model for a Strain Hardening Pipe Element. 77—PVP-47.
LeBlanc, J. C.
see **Brose, H. F.**
Ledford, O. C.
see **Berner, F.**
Lee, D. O.
see **Schimmel, W. P.**
Lee, J. Y.
see **Caspi, S.**
Lee, L.
see **Markowski, E. S.**
Lee, P. M., and Kwok, C. C. K.
A Minimum Drag Criterion for Prisms Mounted Eccentrically in a Channel. 77—FE-9.
Lee, T. W.
On the Kinematic and Dynamic Synthesis of a Variable-Speed Drive. 77—DET-124.
Lee, T. W.
Weight Minimization of a Speed Reducer. 77—DET-163.
Lee, Y. J., Weinberg, L., Moriarty, M. P., and Oliva, R. M.
An Experimental Evaluation of the Flow Distribution in the CRBRP Modular Steam Generator. 77—JPGC-NE-12.
Lehman, S. J.
see **Johnson, B. V.**
Leibowitz, H. M.
An Experimental Evaluation of a Single-Stage Water-Cooled Gas Turbine. 77—JPGC-GT-2.
Leidenfrost, W.
see **White, R. D.**
Leist, T.
see **Martz, J. W.**
Lenertz, J. E.
see **Sturgess, G. J.**
Lent, D. S., and Carnahan, R. P.
Renovation of Waste Shower Water by Membrane Filtration. 77—ENAs-60.
Lenz, E., Moskowitz, D., Mayer, J. E., and Stauffer, D. J.
Optimal Edge Geometry for Maximum Tool Life. 77—WA/Prod-43.
Lesso, W. G.
see **Doğru, S.**
Letson, K. N., Burleson, W. G., and Ormsby, P. A.
Aerothermal and Rain Erosion Behavior of Selected Candidate Plastic Radome Materials in Mach 5 Sled Tests. 77—ENAs-16.
Letton, G. C.
see **Tseka, J.**
Levasseur, A. A.
see **Borio, R. W.**
LeVert, F. E.
Dynamic Analysis of a High Speed Electrohydraulic Transient Rod Drive System. 77—WA/Flcs-8.
Levesque, C. R.
A Method for Performing a Product Liability Investigation. 77—DE-1.
Libertiny, G. Z.
Employer's Expectation of Test Engineers. 77—WA/DE-29.
Libertiny, G. Z.
Product Safety Hazard Analysis. 77—DE-2.
Librizzi, F. P., and Arnold, H. S.
Outage Factors - An Aid to Analyzing Electric Generating Unit Reliability. 77—JPGC-Pwr-9.
Liburdy, J. A., and Faeth, G. M.
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along Vertical Isothermal Wall. 77—WA/HT-30.
Lin, S. D.
see **Niyogi, K. K.**
Lind, G. W., and Protopapas, J.
Engine Cycle Selection and Propulsion System Integration for Future High Performance Fighter Aircraft. 77—GT-101.
Lindner, R.
see **Weidenhamer, G. H.**
Liu, C. H.
see **Hsiao, C. Y. Y.**
Lloyd, A. J. P., and Rajpaul, V. K.
Dynamic Analysis Environmental Control Systems the "EASY" Way. 77—ENAs-6.
Lloyd, A. J. P.
see **Duleba, G. S.**
Lomnes, R. K.
see **Retallack, L. J.**
London, A. L.
see **Hunsbedt, A.**
Longinotti, D. B.
Simulation Techniques in Seismic Qualification of Category I Auxiliary Equipment. 77—DGP-18.
Loo, F. T. C.
see **Ahmad, J.**
Lorenz, J. J., and Howard, P. A.
A Study of the Density Interface in a Stratified LMFBR Outlet Plenum. 77—HT-23.
Lorenz, J. J.
see **Howard, P. A.**
Loudin, G. W.
see **Bartells, P. S.**
Lu, D. C., and Feldman, K. T.
Cost-Effectiveness Study of Heat Pipe Heat Exchangers. 77—WA/HT-5.
Lubin, B. T., Haslinger, K. H., Puri, A., and Goldberg, J.
Experimental Data on the Natural Frequency of a Tubular Array. 77—FE-10.
Lubin, B. T.
Response of a Tube Bank to Turbulent Cross-flow Induced Excitation. 77—DET-142.
Lucke, V. H.
see **Peterson, J. R.**
Ludwig, L. P., and Greiner, H. F.
Design Considerations in Mechanical Face Seals for Improved Performance - I. Basic Configurations. 77—WA/Lub-3.
Ludwig, L. P., and Greiner, H. F.
Design Considerations in Mechanical Face Seals for Improved Performance - II. Lubrication. 77—WA/Lub-4.
Lue, D. D. C.
see **Murry, L. D.**
Luisoni, L. E.
see **Laura, P. A. A.**
Lunardini, V. J.
Approximate Thawing of Permafrost Beneath a Buried Pipe. 77—WA/HT-18.
Lundgren, J. R.
see **Martin, G. C.**
Lunt, H. E.
Hot Corrosion in Gas Turbines. 77—WA/Fu-3.
Lussie, W. G., and Wadkins, R. P.
Fuel Rod Bowing Resulting from Internal Pellet Motion. 77—HT-29.
Lustgarten, G.
How the Sulzer Medium Speed Diesel Engines Meet the Demand for Power Generation. 77—DGP-7.
Luttrell, N. W.
Graphical Output-Oriented Computer Model of a Railroad Freight Car With Conventional Trucks. 77—RT-11.
Lutz, D. C.
see **Thullen, P.**
Lyle, F. F.
see **Norris, E. B.**
Lynch, P. M.
An Economic Guideline for the Design of Programmable Assembly Machines. 77—WA/Aut-2.
Lynch, R. P.
The Elastallic Seal - A New Concept in Mechanical Connection of Marine Pipelines. 77—Pet-84.
Lyon, R. N.
see **Rubin, A. M.**
Lysaght, M. J.
see **Roebelen, G. J.**
Lytle, R.
Environmental Monitoring Data Acquisition Computer System (EMDACS). 77—WA/APC-3.

M

Maass, H.
Ideas and Hypotheses on Plain-Bearing Failures. 77—DGP-13.
McAssey, E. V., and Bonilla, C. F.
A Survey of Rewetting Following a Postulated LOCA. 77—HT-93.
McBride, R. W.
Optimizing Turbine Stage Efficiency by Selecting and Matching Reaction, Velocity Ratio, and Clearance Ratio. 77—WA/FE-10.
McCaffrey, B. J.
see **Quintiere, J.**
MacCallum, N. R. L.
see **Shrivastava, K. D.**
McCann, C. R.
see **Demeter, J. J.**
McCarthy, J. E.
The Research-Cottrell/Bahco SO_3 and Particulate Removal System at Rickenbacker Air Force Base. 77—IPC-Pwr-4.
Macchi, A.
see **Bigret, R.**
McClurken, M. H.
see **Friedlein, T. F.**
McConnell, P. M.
Flow in the Inlet Plenum Feature Model of the Clinch River Breeder Reactor. 77—WA/FE-19.
McDonald, A. T.
see **Eldridge, J. L.**
McDonald, C. F., and Vepa, K.
Ammonia Turbomachinery Design Considerations for the Direct Cycle Nuclear Gas Turbine Waste Heat Power Plant. 77—GT-75.
McDonald, C. F., and Krase, J. M.
Nuclear Gas Turbine Power Plant Activities in the United States. 77—JPGC-GT-5.
McDonald, C. F., Bass, J. C., and Amtmann, H. H.
Primary System Design Studies for Advanced Direct Cycle Nuclear Gas Turbine Plant. 77—GT-25.
MacDonald, J. A.
see **Yousef, W. W.**

McDonald, J. F.
High Speed Portable Grinding Safety. 77—RC-3.
McKee, J.
see **Magee, P. M.**
McMichael, F. C.
see **Rubin, E. S.**
MacMillan, D. B.
An Application of the Substructuring Method to Heat Transfer. 77—PVP-32.
McMinn, D. R.
see **Van Hees, W.**
McNeese, L. E.
see **Kasten, P. R.**
MacPherson, P. B.
The Pitting Performance of Hardened Steels. 77—DET-39.
Madhava, R.
see **Rao, M. S. M.**
Magee, P. M., Gerrels, E. E., Greene, D. A., and McKee, J.
Development of LMFBR Steam Generator Leak Protection Systems. 77—WA/NE-12.
Magliozzi, B.
see **Pegg, R. J.**
Mahefkey, E. T., Pinson, J. D., and Crisp, J. N.
Analysis of Transient Heat Transfer in Porous Solids with Application Toward Phase Separation Processes. 77—WA/HT-13.
Mahig, J.
see **Kakad, Y. P.**
Majumdar, A. K., and Spalding, D. B.
A Numerical Investigation of Three-Dimensional Flows in a Rotating Duct by a Partially-Parabolic Procedure. 77—WA/FE-7.
Maki, M.
see **Hirokawa, S.**
Mallow, W. A., and Dean, J. K.
Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells. 77—Pet-27.
Malone, B. G.
see **Bartells, P. S.**
Mancuso, J. R.
A New Wrinkle to Diaphragm Couplings. 77—DET-128.
Mangialardi, J. K.
see **Murray, R. W.**
Mann, R. W.
see **Hogan, N.**
Manning, G. B.
see **Aiff, R. K.**
Markham, D. M., Maxwell, C. D., Demetriades, S. T., and Oliver, D. A.
A Numerical Solution to the Unsteady, Quasi-Three-Dimensional, Turbulent Heat Transfer Problem in an MHD Channel. 77—HT-90.
Markowski, E. S., Lee, L. E., Biderman, R., and Casterline, J. E.
Effect of Rod Bowing on CHF in PWR Fuel Assemblies. 77—HT-91.
Maroni, V. A.
see **Misra, B.**
Marsh, W. D.
see **Kaupang, B. M.**
Marshall, R. D., Woods, R. R., Hallick, T. M., and Schubert, F. H.
Development of a Three-Man Preprototype Independent Air Revitalization Subsystem (IARS). 77—ENAs-31.
Marshall, R. D.
see **Schubert, F. H.**
Marshek, K. M., and Gartner, J. R.
A Technique for Assessing the Running Life of Thermoplastic Conveyor Chains. 77—DET-160.
Marston, C. H.
see **Zauderer, B.**
Martin, G. C., Lundgren, J. R., and Punwani, S. K.
Planning the Facility for Accelerated Service Testing. 77—RT-10.
Martin, G. C.
see **So, W.**
Martin, J. R.
see **Kramer, M. L.**
Martinez-Sanchez, M., and Sadovnik, I.
Effects of Slagging in MHD Generator Ducts. 77—HT-59.
Martz, J. W., and Leist, T.
Application of Modal Testing Techniques to Solve Vibration Problems in Machinery Supporting Structures. 77—DE-16.
Mathews, M. K.
see **Modak, A. T.**
Mathews, R. E., Saffell, B. F., and Mattu, R. K.
Dynamic Analysis of a Pressurized Water Reactor Primary Coolant System Subjected to Postulated Loss-of-Coolant Accident Transient Loads. 77—WA/DE-23.
Matsuda, T.
see **Ishida, K.**
Matsuki, M., Torisaki, T., Miyazawa, K., and Itoh, M.
Status Report of the Turbofan Engine Development Program in Japan. 77—GT-102.
Matsumoto, M., and Tomabechi, M.
Experimental Stress Analysis of 24 in. × 12 in. Wilding Tee and Comparison with Finite Element Methods. 77—PVP-51.
Matsumoto, S.
On the Design of Surface Durability of Rolling-Sliding Contact Surface. 77—DET-115.
Matteson, L. G.
A Comparison of Characteristics of Large Process Control Computer Systems. 77—WA/Aut-10.
Mattingly, G. E., and Davis, R. W.
Numerical Solutions for Laminar Orifice Flow. 77—WA/FE-13.
Mattu, R. K.
see **Mathews, R. E.**
Maxey, W. A.
see **Wilkowski, G. M.**
Maxwell, C. D.
see **Markham, D. M.**
Mayer, J. E.
see **Lenz, E.**
Mayes, I. W.
Crack Propagation in Rotating Shafts. 77—DET-164.
Mayinger, F.
see **Schult, M.**
Mayne, R. W.
see **Metwalli, S. M.**
Meier, E.
see **Zehnder, G.**
Meligi, A. E., and Hassaballa, M. M.
Guidelines for Determining the Seismic Input and Qualifying Valves and Locally Mounted Instruments. 77—PVP-61.
Memarzadeh, M. A., and Barton, T. H.
The Wind, a Low Grade Energy Source. 77—WA/Ener-4.
Mende, H., and Freeze, H. L.
Evolution of Radwaste Evaporators in West Germany. 77—JPGC-NE-13.
Merrick, G. J., and Cook, G. E.
The Merrick "Hot Piper" Automated Pipe Welding System. 77—Pet-62.
Merrill, M. H., and Lane, R. K.
Alternate Fuel Cycles in HTGRs. 77—JPGC-NE-26.
Merson, J. L.
see **Bennett, J. G.**
Mettig, H.
On the Development of Medium-Speed Diesels for Economical Power Generation. 77—DGP-15.
Metwalli, S. M., and Mayne, R. W.
New Optimization Techniques. 77—DET-169.
Metwalli, S. M.
see **Shawki, G. S. A.**
Mikesell, C. R.
see **Beller, L. S.**
Mikielewicz, J.
see **Ihnatowicz, E.**
Miletti, D. L.
see **Kubanek, G. R.**
Miller, C. A., Costantino, C. J., and Fink, H. I.
Locating Pipe Supports for Combined Thermal and Seismic Loading. 77—PVP-63.
Minati, K. F.
see **Jensen, J. E.**
Minuti, D.
see **Peterson, M. B.**
Miranda, C. F., Nelson, A. C., Richards, J. R., and Morrison, R. M.
An Optimization Strategy for Control of SO_x from Coal-Fired Power Plants. 77—JPGC-Pwr-16.
Miranda, C. F.
see **Nelson, S.**
Miskolczy, G.
see **Huffman, F. N.**
Misra, A. K., and Modi, V. J.
Dynamics of a Neutrally Buoyant Inflatable Oceanographic Platform. 77—DET-139.
Misra, B., Stevens, H. C., and Maroni, V. A.
Thermal Hydraulic and Power Cycle Analysis of Liquid Lithium Blanket Designs. 77—HT-84.
Miyazawa, K.
see **Matsuki, M.**
Miyoshi, E., Tanaka, T., Nozaki, N., and Fukuda, M.
Development of Sumitomo High Toughness Process (SHT) for Arctic Grade Line Pipes. 77—Pet-61.
Mizumachi, N.
see **Takizawa, M.**
Mizutani, H.
see **Yuruzume, I.**
Modak, A. T., and Mathews, M. K.
Radiation Augmented Fires Within Enclosures. 77—HT-98.
Modell, M.
Reforming of Glucose and Wood at the Critical Conditions of Water. 77—ENAs-2.
Modest, M. F., and Poon, S. C.
Determination of Three-Dimensional Radiative Exchange Factors for the Space Shuttle by Monte Carlo. 77—HT-49.
Modi, V. J.
see **Misra, A. K.**
Mohana, K.
see **Kumar, T. C. M.**
Molburg, J. C.
see **Rubin, E. S.**
Moore, E. K.
see **Tepper, E. H.**
Moore, N. D.
Fume Formation in Ammonia Scrubbers. 77—WA/APC-2.
Moore, W. L.
Low-Cycle Fatigue and Ultimate Strength Related to Gear Design. 77—DET-66.
Morasky, T. M.
see **Robards, R. F.**
Morehouse, J. H., and Vachon, R. I.
A 'No-Flow' Method for Measuring Solar Collector Performance. 77—WA/Sol-5.
Morgan, G. W.
Force Systems Acting on Arbitrarily Directed Tubular Members in the Sea. 77—Pet-38.
Moriarty, M. P.
see **Lee, Y. J.**
Morrison, F. A.
Flow Through Porous Media From a Nuclear Cavity. 77—FE-23.
Morrison, R. M.
see **Miranda, C. F.**
Moser, T. D., and Newman, M. B.
Design Considerations of Figures: Finite Element Interactive Graphics User Routines. 77—DE-34.
Moses, H. L.
see **O'Brien, W. F.**
Mosier, J. E.
see **Stephenson, J. G.**
Moskowitz, D.
see **Lenz, E.**
Moskowitz, I.
The Design of Nondestructive Testing Equipment for Industrial Plants of Today and Tomorrow. 77—DE-8.
Moslehy, F. A. H., and Ragab, A. R.
Stress Relaxation of a Thick-Walled Tube Shrunk Inside a Rigid Sheet. 77—DE-42.
Moussa, N. A.
see **Tell, N. E.**
Moy, H. C., and Sanghani, K. J.
Experimental Evaluation of Water Surface Heat Exchange. 77—HT-41.
Mruk, G., Halloran, J., and Kolodziej, R.
Torsional Response of Compressor Shaft Systems During Synchronous Motor Startup Part I - Analytical Model. 77—Pet-49.
Mruk, G.
see **Halloran, J. D.**
Mruk, G.
see **Kolodziej, R.**
Mucoglu, A., and Chen, T. S.
Analysis of Mixed Convection About a Sphere with Uniform Surface Heat Flux. 77—WA/HT-1.
Mucoglu, A., and Chen, T. S.
Analysis of Mixed Convection Across a Horizontal Cylinder with Uniform Surface Heat Flux. 77—HT-45.
Mueller, W. K.
see **Pinnes, E. L.**
Mulholland, G. P.
see **Hills, R. G.**

Murphree, D. L., Bell, C. J., Cain, R. W., Nail, J. B., Powe, R. E., Shepard, W. S. and Wehr, A. G.
A MHD Simulation Test Facility for Investigating the Thermal Properties of a Slag/Seed Coated Radiant Boiler and Superheater for a 2000 MW_t MHD Power Plant. 77—HT-64.
Murphy, G. L.
see **Thiele, R. J.**
Murray, R. W., Mangialardi, J. K., Stoll, O. T., and Bazell, G. E.
Waste Management for Shuttle. 77—ENAs-26.
Murry, L. D., and Lue, D. D. C.
Stingray Pipeline Automated Measurement and Control System. 77—GT-91.
Murty, K. N., and Sarma, P. K.
Laminar Film Condensation - Combined Effect of Magnetic Field and Variable Gravity. 77—HT-25.
Mussulman, R. L., Warrington, R. O., and Prill, R. L.
Analysis of a New Concept for a High Temperature Direct Coal-Fired Falling Particle Air Pre-Heater for MHD Power Generation. 77—HT-60.
Muszyńska, A.
see **Jones, D. I. G.**
Myers, G. E.
The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transient. 77—WA/HT-14.

N

Na, T. Y.
see **Kurajian, G. M.**
Nagata, S.
see **Ito, Y.**
Naghdi, A. K.
Torsion of Bars of Solid Polygonal and Hollowed Polygonal-Circular Cross Sections. 77—WA/DE-27.
Nail, J. B.
see **Murphree, D. L.**
Nakagawa, N.
see **Iwatsubo, T.**
Nakanishi, K., Watanabe, T., and Yamazaki, S.
Development of the Centrifugal Compressor for the Nissan Vehicular Gas Turbine. 77—GT-100.
Nakayama, T.
see **Inoue, N.**
Nau, J. M.
see **Zorowski, C. F.**
Nazimowitz, W.
see **Hunter, S. C.**
Nazli, M.
see **Yuan, S. W.**
Nelson, A. C.
see **Miranda, C. F.**
Nelson, C. W.
see **Kooker, D. E.**
Nelson, D. A.
Radiation Heat Transfer in Molecular-Gas Filled Enclosures. 77—HT-16.
Nelson, F. C., and Sullivan, D. F.
The Forced Vibration of a Three-Layer Damped Circular Ring. 77—DET-154.
Nelson, L. A.
see **Coffay, B.**
Nelson, R. G.
see **Hope, P. M.**
Nelson, S., Rhomberg, E. J., and Miranda, C. F.
Simplex Solution of Magnel's Method of Prestressed Concrete Beam Design. 77—DET-109.
Newman, M. B.
see **Moser, T. D.**
Newton, D. H.
see **Armstrong, C. H.**
Nicol, S. W.
see **Turnbull, S. R.**
Nieberding, W. C., and Pollack, J. L.
Optical Detection of Blade Flutter. 77—GT-66.
Niebo, R. J.
Power Plant Productivity Trends and Improvement Possibilities. 77—JPGC-Pwr-11.
Nielsen, T. H.
Fabrication of Rectangular Cell Ceramic Regenerators for Use in Gas Turbine Engines. 77—GT-111.
Nigam, A., and Sinha, B. P.
Flexibility Analysis of Piping Systems Without Neglecting Body Forces. 77—PVP-62.
Nikitin, E.
see **Skripov, V.**
Nixon, D. R.
see **Reed, A. E.**
Niyogi, K. K., and Lin, S. D.
An Analysis of a Two-Steam Gravity-Feed Mixing Process. 77—DE-44.
Nobile, M. A.
see **Snowden, J. C.**
Nordqvist, Y. K., and Olsson, A. I.
Development and Service Experience of the Nohab F-Type 250-MM Bore Diesel Engine. 77—DGP-21.
Norris, E. B., Lyle, F. F., and Blount, F. E.
Evaluation of the Sulfide SCC Susceptibility of Tubular Steels. 77—Pet-3.
North, W. P. T.
Fixed Edge Bending Moments of Thin Rectangular Cantilever Plates Due to Line Loading. 77—DET-119
Novak, G. E., and Stone, D. H.
A Comparison of the Stress Levels in One- and Two-Wear 36-In. Diameter Wheels Under Simulated Service Loads. 77—RT-13.
Novendstern, E. H., Reese, J. C., and Budden, M. J.
Prediction of the CRBRP Outlet Plenum Transient Response Following a Reactor Trip. 77—HT-30.
Novendstern, E. H.
see **Howard, P. A.**
Nozaki, N.
see **Miyoshi, E.**
Nuccio, P. P.
see **Johnson, K. L.**
Nunlist, E. J.
Creating Corporate Incentives to Promote Creativity. 77—DE-5.

O

Oates, G. C.
see **Fabian, J. M.**
Obata, F.
see **Fujita, K.**
Oberjohn, W. J., Carter, H. R., and Schluderberg, D. C.
Thermal-Hydraulic Performance of a Consolidated Nuclear Steam Generator (CNSG) Module. 77—JPGC-NE-2.
Oberjohn, W. J.
see **Bartells, P. S.**
O'Brien, W. F., Moses, H. L., Jones, R. R., and Sparks, J. F.
The V.P.I. Gas Turbine and Turbomachinery Research Laboratory. 77—GT-73.
Odgers, J., and Coban, A.
The Energy Release to Static Gas from a 12-Joule High Energy Ignition System. 77—GT-18.
Okubo, S., and Peng, S. S.
A Model for Axial Splitting Under Uniaxial Compression. 77—Pet-73.
Oliker, I.
Application of Direct Contact Heat Exchangers in Geothermal Systems. 77—HT-3.
Oliker, I.
Heat Exchanger and Thermal Storage Problems in Power Stations Serving District Heating Networks. 77—HT-36.
Oliva, R. M.
see **Lee, Y. J.**
Oliver, D. A.
see **Markham, D. M.**
Olsson, A. I.
see **Nordqvist, Y. K.**
Oosthuizen, P. H.
Experimental Study of Buoyant Wakes in Horizontal Flows. 77—WA/HT-31.
Oosthuizen, P. H.
A Numerical Study of the Surface Thawing of Coal Cars. 77—WA/HT-33.
Ormsby, P. A.
see **Letson, K. N.**
Ortolano, R. J., La Rosa, J. A., and Welch, W. P.
Long Arc Shrouding - A Reliability Improvement for Untuned Steam Turbine Blading. 77—JPGC-Pwr-12.
Osman, M. O. M.
see **Sanker, S.**
Oster, C. A., and Scheffler, W. A.
Well-Hole Temperature Distribution in the Presence of Aquifers - A Parametric Study. 77—Pet-76.
Overman, J. P., and Statt, T. G.
Evaluation of the Performance for a Pneumatic Trash Collection Systems. 77—RC-1.
Overmyer, K. M., Pearce, J. A., and DeWitt, D. P.
Measurements of Temperature Distributions at Electrosurgical Dispersive Electrode Sites. 77—WA/HT-47.
Owada, E.
see **Sasaki, Y.**
Owen, F. K.
Turbulence Measurements of Spray Flames. 77—HT-15.

P

Pagni, P. J.
see **Shih, T. M.**
Pai, D. H.
see **Sawyer, R. H.**
Palen, J. W.
see **Ishihara, K.**
Palmer, R. S.
see **Richards, R. B.**
Palmer, R. S. J., and Jarvis, J. L.
Performance of Composite Flat Belt Drive Materials Under Simulated Power Transmission. 77—DET-167.
Pan, R. B., and Cheatham, J. B.
Effects of Strain-Hardening on Rock/Bit-Tooth Interaction. 77—Pet-70.
Panaras, A. G., and Inger, G. R.
Transonic Normal Shock-Turbulent Boundary Layer Interaction in Pressure Gradient Flows. 77—GT-34.
Pancuska, V. I., and Townshend, A. R.
"CABOS" - Shipboard Sewage Treatment System. 77—ENAs-46.
Panjabi, M. M., White, A. A., and Southwick, W. O.
Mechanical Properties of Fractures as Function of Healing Time. 77—Bio-2.
Panton, R. L.
see **Wilson, D. E.**
Parsons, J.
see **Zauderer, B.**
Paschkis, V.
Appropriate Technology for Developed Countries. 77—WA/TS-4.
Pate, A. J., and Batty, J. C.
Design of a Low Cost Space Heating System Using Warm Geothermal or Industrial Effluents. 77—DE-26.
Pathak, D. V., and Goldberg, J. E.
Analysis of Moderately Thick Flanged Pressure Vessels. 77—PVP-48.
Pavlov, P.
see **Skripov, V.**
Pearce, J. A.
see **Overmyer, K. M.**
Pearson, S. G.
Industrial Plant Heat Recovery. 77—IPC-Pwr-8.
Pearson, S. W.
Thermal Performance Verification of Thermal Vertical Support Members for the Trans-Alaska Pipeline. 77—WA/HT-34.
Peaslee, R. L.
Brazing - An Economical, High-Quality Joining Process. 77—DE-43.
Peeples, M. E., and Calhoun, L. D.
Fabrication and Comparative Performance of Three Variable Conductance Heat Pipe Concepts. 77—ENAs-42.
Pegg, R. J., Farassat, F., and Magliozzi, B.
Some Measured and Calculated Effects of Forward Velocity on Propeller Noise. 77—GT-70.
Peng, S. S.
see **Okubo, S.**
Penterson, C. A.
see **Rogers, J. D.**
Perera, W. G.
Fluid Forces in Real Heat Exchanger Tube Vibrations. 77—DET-146.
Perl, E.
see **Rossettos, J. N.**
Peters, W. H.
see **Smith, C. W.**
Petersen, R. S., and Yarborough, F. B.
Graphite/Epoxy Structures - Design and the Manufacturing Interface. 77—DE-15.

Peterson, J. R., and Lucke, V. H.
Commercial Powerplant Design Development for the Coal Fired Combined Cycle. 77—JPGC-GT-6.
Peterson, M. B., Koury, A. J., Devine, M. J., and Minuti, D.
Costs and Causes of Maintenance in a Ship's Diesel Propulsion System. 77—WA/Lub-2.
Peterson, R. E.
see **Retallack, L. J.**
Pichel, P. W.
A New 10,000-Hp Gas Turbine Engine for Industrial Service. 77—GT-4.
Pierre, B.
see **Tilliette, Z. P.**
Pinaire, R.
see **Zakin, J. L.**
Pinnes, E. L., and Mueller, W. K.
Homogeneous Nucleation in Multi-Component Liquid Mixtures. 77—HT-21.
Pinson, J. D.
see **Mahefkey, E. T.**
Pittroff, H., and Rimrott, U. A.
Stiffness of Machine Tool Spindles. 77—Prod-42.
Pitts, W. H., and Dewey, C. F.
Spectral and Temporal Characteristics of Post-Stenotic Turbulent Wall Pressure Fluctuations. 77—Bio-8.
Pizzigoni, B.
see **Bachschmid, N.**
Plache, K. O.
Coriolis/Gyroscopic Flow Meter. 77—WA/FM-4.
Plass, S. B.
see **Jacobs, H. R.**
Pnueli, D.
see **Rozeanu, L.**
Pocock, R. E.
New Instruments and Controls Save Purchased Fuels and Burn Waste Fuels Efficiently. 77—IPC-Pwr-5.
Polak, A., and Werle, M. J.
Interacting Turbulent Boundary Layer Over a Wavy Wall. 77—WA/HT-28.
Poling, W. D.
Nuclear Power Plant Quality Assurance - Palliative or Panacea? 77—RC-10.
Pollack, J. L.
see **Nieberding, W. C.**
Poon, S. C.
see **Modest, M. F.**
Postlethwaite, A. W., and Sluyter, M. M.
Heat Transfer Problems Associated With an MHD Power Generation System - An Overview. 77—HT-62.
Potter, R. C.
OSHA and the Noise of Pneumatic Systems. 77—DE-49.
Powe, R. E.
see **Murphree, D. L.**
Powell, J.
see **Fillo, J. A.**
Prachuktam, S.
see **Chang, T. Y.**
Prachuktam, S.
see **Reich, M.**
Pressman, R. S.
Non-Numerical Techniques for Design Synthesis. 77—DET-8.
Priebe, L. A., and Welch, A. J.
Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation. 77—WA/HT-45.
Prill, R. L.
see **Mussulman, R. L.**
Primak, A.
Stresses at the Junction of Conical Pressure Vessel Head and Cylindrical Outlet Caused by Asymmetric Loadings. 77—PVP-43.
Proctor, B. W.
see **Copeland, R. J.**
Protopapas, J.
see **Lind, G. W.**
Puhl, G. T.
A Comparison of ECS Controls. 77—ENAs-8.
Punwani, S. K.
see **Martin, G. C.**
Purcupile, J. C.
see **Baum, A. J.**
Puri, A.
see **Lubin, B. T.**
Purohit, G. P.
see **Dhir, V. K.**
Putnam, D. F.
Wash Water Reclamation Technology for Advanced Manned Spacecraft. 77—ENAs-50.
Putnam, D. F.
see **Colombo, G. V.**

Q

Quattrone, P. D.
see **Schubert, F. H.**
Quintiere, J., McCaffrey, B. J., and Kashiwagi, T.
A Scaling Study of a Corridor Subject to a Room Fire. 77—HT-72.

R

Ragab, A. R.
see **Moslehy, F. A. H.**
Ragsdell, K. M.
see **Root, R. R.**
Rajaram, S.
see **Yu, C. P.**
Rajpaul, V. K.
see **Lloyd, A. J. P.**
Ramakrishnan, C. V.
see **Bhavikatti, S. S.**
Ramesh, C. K.
see **Belkune, R. W.**
Ramm, H., and Johannsen, K.
Combined Forced and Free Laminar Convection in Verticle Rod Bundles with Longitudinal Flow. 77—HT-44.
Rao, M. S. M.
PACC - A Computer Program for ASME Section III Categorization of Finite Element Stresses. 77—PVP-17.
Rao, V. D.
see **Carriere, D. L.**
Rao, Y. V. N.
see **Varghese, G.**
Ray, C. D.
see **Jagow, R. B.**
Read, M. J.
see **Walker, G.**
Reddy, J. N., and Tsay, C.-S.
Free Vibration of Thin Rectangular Plates by a Mixed Finite Element. 77—DET-143.
Reddy, V. S. and Kroenke, W. C.
Economical Generation of Three-Dimensional Finite Element Grids. 77—PVP-26.
Reed, A. E., and Nixon, D. R.
Fast Flux Test Facility Pump - Thermal Analysis Verification. 77—WA/NE-14.
Reed, R. D.
Fired Heater Design, Operation and Maintenance for Maximum Efficiency. 77—Pet-1.
Reese, J. C.
see **Novendstern, E. H.**
Reeves, G. B.
Design and Performances of Selected Pipe-Type Diffusers. 77—GT-104.
Reich, M., Prachuktam, S., and Gardner, D.
Determination of Burst Pressures for Cracked Steam Generator Tubes. 77—PVP-31.
Reich, M.
see **Chang, T. Y.**
Reid, S. E.
see **Friedlein, T. F.**
Reihman, T. C.
see **Sande, C. K.**
Reimers, S. D.
Hyperbaric Breathing Simulators for Use in the Evaluation of Underwater and Hyperbaric Breathing Apparatus. 77—WA/OCE-6.
Reisinger, R. R.
Work-Rated Hoist Selection. 77—RC-8.
Reistad, G. M.
see **Fukuda, M.**
Reiter, U.
see **Bammert, K.**
Retallack, L. J., Lomnes, R. K., Kenyon, D. J., Peterson, R. E., and Hamilton, R. W.
A Specialized Microprocessor System for Decompression Management of Deep Diving. 77—WA/OCE-7.
Reveley, W. F.
see **Johnson, K. L.**
Reynen, J.
Surface Cracks in Cylinders During Thermal Shock. 77—PVP-5.
Reynolds, D. J.
see **Blank, R. W.**
Reysa, R. P.
Space Station Prototype Advanced Life Support System Hardware Testing. 77—ENAs-32.
Rhee, S. J., Dhir, V. K., and Catton, I.
Natural Convection Heat Transfer in Beds of Inductively Heated Particles. 77—WA/HT-2.
Rhomberg, E. J.
see **Nelson, S.**
Rice, P. W.
Evaluating Nickel Base and Stainless Alloys for Subsurface H_2S Service. 77—Pet-16.
Rich, J.
see **Boehm, R.**
Richards, J. R.
see **Miranada, C. F.**
Richards, R. B., and Palmer, R. S.
Program to Establish LMFBR Commercialization. 77—JPGC-NE-23.
Riegel, P. S.
Breathing Dynamics of a Diver Face Mask Fitted with a Demand Regulator. 77—DE-30.
Rimrott, U. A.
see **Pittroff, H.**
Roach, J. D., and Dodson, J. C.
Design Features and Performance Characteristics of a Low Horsepower Multipurpose Pump. 77—Pet-64.
Robards, R. F., Cole, R. M., and Morasky, T. M.
TVA's Cocurrent Scrubber Evaluation. 77—WA/APC-8.
Roberts, C. C.
Heat Pipe Exchangers for Solar Homes. 77—WA/Sol-7.
Roberts, G. W.
Quality Assurance in R&D. 77—DE-10.
Robin, T. T., and Brickell, M. C.
Reliability of Operating Power Plants - A Utility Viewpoint. 77—JPGC-Pwr-10.
Robson, F. L.
see **Carlson, N. G.**
Rodgers, D. N., Rush, D. J., Valente, C. G., Dutina, D., and Stephens, P. B.
Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator. 77—JPGC-NE-8.
Rodgers, R. C., Caruthers, G. F., and Swartz, H. M.
Occupational Exposure Measurement Program at Millstone-2. 77—JPGC-NE-16.
Roebelen, G. J., and Lysaght, M. J.
Hollow Fiber Membranes for Advanced Life Support Systems. 77—ENAs-43.
Rogers, C. R.
Substructuring as a Everyday Design Tool. 77—PVP-27.
Rogers, D. A.
see **Zauderer, B.**
Rogers, J. D., and Penterson, C. A.
Predicting Sonic Vibration in Cross Flow Heat Exchangers - Experience and Model Testing. 77—WA/DE-28.
Romeo, R. A.
Quality Assurance and Quality Control in Pressure Vessel Fabrication. 77—PVP-22.
Romsos, W. N.
see **Hassberger, J. A.**
Root, R. R., and Ragsdell, K. M.
The Circuit Breaker - A Practical Example in Engineering Optimization. 77—DET-7.
Ross, D. C., and Diller, K. R.
The Therapeutic Effects of Postburn Cooling. 77—HT-27.
Ross, F. F.
A 1977 Approach to Sulfur Oxide Emissions. 77—JPGC-Pwr-1.
Ross, L. W., and Chowdhury, A. K.
Catalytic Oxidation of Strong Waste Waters. 77—ENAs-1.
Ross, L. W.
see **Berzins, V.**
Rosser, R. M.
see **Bartels, P. S.**
Rossettos, J. N., and Perl, E.
Extensional and Shear Strain Damping Mechanisms in Constrained Layer Damped Vibration. 77—DET-74.
Rossini, T.
see **Clapis, A.**
Roth, G. J.
Load Sequences for Laboratory Simulation of Flight-by-Flight Stress Spectra. 77—WA/DE-25.

Roukis, J. G., and Bocchicchio, R. L.
The Performance of the Water Bubbler Heat Sink for the EF-111 Aircraft. 77—ENAs-11.
Rouverol, W. S., and Errichello, R.
Standard-Pitch Gearing. 77—DET-56.
Rozeanu, L., and Godet, M.
Model for Gear Scoring. 77—DET-60.
Rubin, A. M., and Lyon, R. N.
Hazards and Materials Compatibility of Ammonia for Power Plant Applications. 77—RC-4.
Rubin, E. S., Molburg, J. C., and McMichael, F. C.
Cross-Media Considerations in Regulatory Policy for Coal Utilization Systems. 77—Pet-4.
Rudland, R. S., and Sunderland, J. E.
An Experimental Study of Heat Transfer from the Wake Region of a Spray Cooled Isothermal Cylinder. 77—HT-33.
Ruh, R.
see **Larsen, D. C.**
Ruhe, A.
see **Kind, R. W.**
Rumbarger, J. H.
see **Sague, J. E.**
Rupinskas, V.
see **Chen, M. M.**
Rush, D. J.
see **Rodgers, D. N.**
Russell, J. H.
see **Erickson, A. C.**

S

Sadovnik, I.
see **Martinez-Sanchez, M.**
Saffell, B. F.
see **Grubb, R. L.**
Saffell, B. F.
see **Mathews, R. E.**
Sagal, M. W.
Effective Technology Transfer - From Laboratory to Production Line. 77—DE-11.
Sague, J. E., and Rumbarger, J. H.
Design Criteria to Prevent Core Crushing Failure in Large Diameter, Case Hardened, Ball and Roller Bearings. 77—DE-39.
Saha, P., Shiralkar, B. S., and Dix, G. E.
A Post-Dryout Heat Transfer Model Based on Actual Vapor Generation Rate in Dispersed Droplet Regime. 77—HT-80.
Sakai, T.
see **Hirolawa, S.**
Saltonstall, R.
see **Hyman, B.**
Sande, C. K., Townes, H. W., and Reihman, T. C.
Particulate Deposition in Direct Fired MHD Air Preheaters. 77—HT-65.
Sandler, B.-Z.
Cam Mechanism Accuracy. 77—WA/DE-19.
Sandquist, G. M.
see **Swanson, S. R.**
Sanghani, K. J.
see **Moy, H. C.**
Sankar, S., and Osman, M. O. M.
Dynamic Accuracy of Hybrid Profiling Mechanisms in Cam Manufacturing. 77—WA/DE-3.
Sankar, S.
On The Torsional Vibration of Branched Systems Using Extended Transfer Matrix Method. 77—WA/DE-4.
Santo, J. E.
see **Sundaram, T. R.**
Sarau, R. W.
Operating Economics and Unit Availability. 77—JPGC-Pwr-5.
Sarma, P. K.
see **Murty, K. N.**
Sasaki, S.
see **Takizawa, M.**
Sasaki, Y., Baba, N., Akita, Y., Tashiro, S., and Owada, E.
Finite Element Analysis of an Oil Storage Tank Including the Effects of Interaction Between the Tank's Structure and Its Foundation. 77—PVP-53.
Satter, M. A.
Vibration of Beams Carrying Discrete Dampers and Masses. 77—WA/DE-7.
Savery, C. W.
see **Bhatti, M. S.**
Sawyer, R. H., Cho, S. M., and Pai, D. H.
Intermediate Heat Exchanger Development for the Clinch River Breeder Reactor Plant. 77—WA/NE-10.
Schatzberg, P.
see **Harris, L. R.**
Scheffler, W. A.
see **Oster, C. A.**
Schetz, J. A.
see **Sill, B. L.**
Schimmel, W. P., Hickox, C. E., and Lee, D. O.
Tracking and Shadowing Models for Solar Collection Systems. 77—WA/Sol-8.
Schimmel, W. P.
see **Donaldson, A. B.**
Schimmels, J. N.
see **Houlihan, T. M.**
Schleicher, M.
see **Berner, F.**
Schluderberg, D. C.
see **Oberjohn, W. J.**
Schmeisser, G.
see **Seamone, W.**
Schmidt, F. W.
see **Szego, J.**
Schmidt, R. P.
see **Younghouse, E. C.**
Schmidt, W., Venhuis, D., and Hinkle, S.
Prediction and Measurement of Two-Stoke Cycle Diesel Engine Performance and Smoke at Altitude. 77—DGP-3.
Schneider, R. W., and Waters, E. O.
The Background of ASME Code Case XXXX; A Simplified Method of Analyzing Part B Flanges. 77—PVP-38.
Schoenhals, R. J.
see **Hore, P. S.**
Schunert, F. A.
see **Lantz, J. B.**
Schubert, F. H., Marshall, R. D., Quattrone, P. D., and Wynveen, R. A.
Development of a Three-Man Preprototype CO_2 Collection Subsystem for Spacecraft Application. 77—ENAs-19.
Schubert, F. H.
see **Marshall, R. D.**
Schult, M., and Mayinger, F.
Dynamic Characteristics of Double-Pipe Heat Exchangers with Double Phase Change. 77—WA/HT-26.
Schultz, C. C., and Zien, H. M.
Verification of Specimens for Low Cycle Fatigue and Cyclic Plasticity Testing. 77—PVP-35.
Schulz, G. W.
Caterpillar Heavy-Duty 1300 HP Deep-Ratio Marine Transmission. 77—DGP-2.
Schulze, F. W.
see **Baker, P. H.**
Schwarz, R. C.
Designing Fuel Treatment Programs for Gas-to-Oil Converted Central Station Boilers. 77—JPGC-Pwr-13.
Scott, C. J.
see **Sharma, B. I.**
Scott, J. N.
Improving Turbo Compressor Efficiency via Performance Analysis Techniques. 77—GT-53.
Seamone, W., and Schmeisser, G.
A Powered Medical Manipulator for the High Spinal Cord Injured Person. 77—WA/Bio-13.
Secord, T. C.
see **Thiele, R. J.**
Seleghim, P.
Dynamic Analysis of a Hydrostatic Clutch. 77—DET-153.
Seth, B. B.
see **Braun, S. G.**
Sexton, R. W.
see **Krause, H. H.**
Sforza, P. M., and Stasi, W.
Heated Three-Dimensional Turbulent Jets. 77—WA/HT-27.
Shah, R. P., and Corman, J. C.
Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal. 77—WA/Ener-9.
Shapiro, W.
Compliant Mounted Bearings and Their Application. 77—DE-18.
Sharma, B. I., Launder, B. E., and Scott, C. J.
Computation of Annular Turbulent Flow with Rotating Core Tube. 77—FE-13.
Sharma, V. K., Breen, D. H., and Walter, G. H.
An Analytical Approach for Establishing Case Depth Requirements in Carburized Gears. 77—DET-152.
Sharp, J. D., and Drake, M. L.
Elimination of a Resonant Fatigue Problem for Major Maintenance Benefits. 77—DET-135.
Sharp, J. D.
see **Drake, M. L.**
Sharp, J. J., and Vyas, B. D.
Mathematical and Physical Models of Ocean Outfall Performance. 77—ENAs-52.
Sharp, R. F.
see **Iyengar, S. K. R.**
Shaw, L. M.
see **Wazyniak, J. A.**
Shawki, G. S. A.
Material Failure and Component Design Under Cyclic Loading. 77—DE-27.
Shawki, G. S. A., Metwalli, S. M., and Elzoghby, A. A.
Optimum Design of Uniform-Section Disk Springs Under Various Constraints. 77—WA/DE-22.
Sheldon, R. C.
see **Alff, R. K.**
Sheldon, R. C., and Day, W. H.
The Utilization of High Temperature Gas Turbines in Integrated Coal-Derived Fuel Combined Cycles. 77—WA/Ener-12.
Sheoran, Y.
see **Hamed, A.**
Shepard, W. S.
see **Murphree, D. L.**
Sheth, H.
see **Stoneking, J. E.**
Sheth, P. R.
see **Lawit, R. L.**
Shevchuk, G. J., and Thullen, P.
Flexural Vibrations of Rotating Electromagnetic Shields. 77—WA/DE-15.
Shih, T. M., and Pagni, P. J.
Wake Turbulent Flames. 77—HT-97.
Shimono, M.
see **Inoue, N.**
Shimozono, G. S.
see **Kihara, D. H.**
Shimura, T.
see **Kamijo, K.**
Shin, Y. S., Jendrzejczyk, J. A., and Wambsganss, M. W.
Vibration of a Heat Exchanger Tube with Tube/Support Impact. 77—JPGC-NE-5.
Shiralkar, B. S.
see **Saha, P.**
Shrivastava, K. D., and MacCullum, N. R. L.
The Effect of a Transversely Injected Stream on the Flow Through Turbine Cascades: Part I - Flow Effects. 77—GT-87.
Shrivastava, K. D., and MacCallum, N. R. L.
The Effect of a Transversely Injected Stream on the Flow Through Turbine Cascades: Part II - Performance Changes. 77—GT-88.
Shube, E. E.
see **Turner, E. G.**
Shumar, J. W., Lance, N., Lantz, J. B., and Wynveen, R. A.
Development of an In Situ Calibration Technique for Combustible Gas Detectors. 77—ENAs-22.
Shupe, D. S.
Overview - Energy and the Automobile. 77—RC-5.
Sieker, W. D.
see **Daniels, D. J.**
Sievers, G. K.
see **Bresnahan, D. L.**
Sikarskie, D. L.
see **Altiero, N. J.**
Sill, B. L., and Schetz, J. A.
The Interrelationship Between Eddy Viscosity, Mixing Length, Entrainment and Width Growth Models in Turbulent Flows. 77—FE-20.
Silver, L. T.
see **Boyd, J.**
Simoneau, R. J.
Velocity and Temperature Profiles in Near-Critical Nitrogen Flowing Past a Horizontal Flat Plate. 77—HT-7.
Simonson, E. R.
see **Abou-Sayed, A. S.**
Singh, A. K., and Kumar, V.
Dynamic Analysis of Piping Systems Using Substructures. 77—DET-144.
Singh, T.
see **Conkol, G. K.**
Sinha, B. P.
see **Nigam, A.**
Sinitsin, E.
see **Skripov, V.**

Sivaram, C., and Colborne, W. G.
Effect of Scaling on Switching Time of Bistable Amplifiers. 77—WA/FIcs-5.
Skiadaressis, D., and Spalding, D. B.
Heat Transfer in a Pipe Rotating Around a Perpendicular Axis. 77—WA/HT-39.
Skladany, J. T., and Kelly, W. H.
Thermal Design of the IUE Hydrazine Auxiliary Propulsion System. 77—ENAs-45.
Skripov, V., Ermakov, G., Sinitsin, E., Pavlov, P., Baidakov, V., Bulanov, N., Danilov, N., and Nikitin, E.
Superheated Liquids: Thermophysical Properties, Homogeneous Nucleation and Explosive Boiling-Up. 77—HT-87.
Sluyter, M. M.
see **Postlethwaite, A. W.**
Small, N. C.
Plastic Collapse of Oval Straight Tubes Under External Pressure. 77—PVP-57.
Smiley, J. A., and Burmeister, L. C.
Potential Improvement of Solar Pond Efficiency by Downward Convection. 77—WA/HT-6.
Smith, C. H.
Gas Turbine Installations for Air Cushion Vehicle Lift and Propulsion Power - The AALC JEFF Craft. 77—GT-71.
Smith, C. O.
Dare You Ride Your Snowmobile? 77—RC-13.
Smith, C. W., Peters, W. H., and Joiles, M. I.
Stress Intensity Factors for Reactor Vessel Nozzle Cracks. 77—PVP-30.
Smith, D. K.
see **Cunningham, W. C.**
Smith, G. A.
Controlling Innovation: A People-Oriented Process. 77—WA/Mgt-1.
Smith, J. E.
Case History of Bag Filter Operation on Spreader Stoker Boilers. 77—IPC-Pwr-3.
Smith, J. W.
see **Costello, R. M.**
Smith, P. R., Freeman, J. A., and Wender, P. J.
Seismic Qualification of Cable Tray Systems. 77—PVP-6.
Smith, T. F.
see **Clausen, C. W.**
Snider, A. D.
see **Kraus, A. D.**
Snowdon, J. C., and Mobile, M. A.
Beamlike Dynamic Vibration Absorbers. 77—DET-176.
Snyder, A. E.
Formulating an International Contract for Engineering and Technical Services. 77—WA/Mgt-4.
Snyder, D. J.
Perspectives of the Legal System. 77—DE-22.
So, R. M. C.
The Effects of Streamline Curvature on Reynolds Analogy. 77—WA/FE-17.
So, W., and Martin, G. C.
Finite Element Track Buckling Model. 77—RT-5.
Solberg, R. F.
Conflict Management for Engineers. 77—DE-6.
Soler, A. I.
Analysis of Closely Spaced Double Tubesheets Under Mechanical and Thermal Loadings. 77—JPGC-NE-21.
Soliman, H. M., and Feingold, A.
Heat Transfer, Pressure Drop, and Performance Evaluation of a Quintuplex Internally Finned Tube. 77—HT-46.
Soo, S. L.
see **Chen, C. H.**
Sosa, F., and Baker, E. W.
Reducing Casing Vibrations on Large Vertical Circulating Water Pumps. 77—FE-28.
Sotter, J. G.
see **Hunter, S. C.**
Soukup, R. J.
Computerized Aid for Liquid Pipeline Scheduling and Dispatching Functions. 77—Pet-20.
Southwick, W. O.
see **Panjabi, M. M.**
Spachner, S. A.
Establishing Concrete R&D Payback Criteria to Increase Cost Effectiveness of R&D Operations. 77—DE-25.
Spalding, D. B.
see **Majumdar, A. K.**
Spalding, D. B.
see **Skiadaressis, D.**
Spalvins, T.
New Applications of Sputtering and Ion Plating. 77—DE-21.
Sparks, J. F.
see **O'Brien, W. F.**
Sparrow, E. M.
Heat Transfer in Complex Duct Flows. 77—HT-95.
Sperberg, R. T.
see **Stehling, S. G.**
Spintig, J., and Eckert, H.
The Spacelab Environmental Control/Life Support Subsystem. 77—ENAs-24.
Spitze, L. A.
see **Ballou, E. V.**
Sponseller, D. L.
see **Straatmann, J. A.**
Sposito, V. A., and Trzeciak, J. M.
Maximization of Signomials or Posynomials. 77—DET-4.
Srinivasan, K., and Nachtigal, C. L.
Application of the Regeneration Spectrum to the Design of Machine Tool Chatter Control Systems. 77—WA/Aut-8.
Srinivasan, K., and Nachtigal, C. L.
The Regeneration Spectrum - A New Tool for the Stability Analysis of a Class of Linear Time Delayed Systems. 77—WA/Aut-9.
Srinivasan, K.
see **Nachtigal, C. L.**
Stachiw, J. D.
see **Stachiw, J. L.**
Stachiw, J. L., and Stachiw, J. D.
Effect of Weathering and Submersion in Seawater on the Mechanical Properties of Acrylic Plastic. 77—WA/OCE-5.
Stahl, J. R.
Defect Traceability - An Effective Tool for Improved Quality Control. 77—DE-29.
Stankovich, I. D.
Problems in Control of Particulates in Bulk Material Handling. 77—WA/APC-5.
Stanley, J. S.
Conversion of Gas Pipeline to Liquids Service. 77—Pet-18.
Stanley, M. D.
see **Brose, H. F.**
Starken, H.
see **Fuchs, R.**
Stasi, W.
see **Sforza, P. M.**
Statt, T. G.
see **Overman, J. P.**
Stauffer, D. J.
see **Lenz, E.**
Stearman, R.
see **Wilson, D. E.**
Steffens, J.
Appropraite Technology - Past and Future. 77—WA/TS-8.
Stehling, S. G., Hunsicker, J. C., and Sperberg, R. T.
Development Testing of Leak Injection Devices for Use in Testing Sodium-Water Leak Detection Modules. 77—JPGC-NE-7.
Stehling, S. G., and Hunsicker, J. C.
Investigations into the Sodium-Steam Surface Interaction on a Stagnant Pool. 77—JPGC-NE-11.
Steinberg, D. S.
see **Laura, P. A. A.**
Stephens, P. B.
see **Rodgers, D. N.**
Stephenson, J. G., and Mosier, J. E.
Train Dynamics Analyzer: A Training Simulator for Locomotive Engineers. 77—WA/RT-10.
Stevens, H. C.
see **Misra, B.**
Steward, F. R., Wuest, L. J., and Waibel, R. T.
Some Characteristics of Fires Within Uniform Fuel Matrices. 77—HT-71.
Stoker, R. C.
see **Kunze, J. F.**
Stoll, O. T.
see **Murray, R. W.**
Stone, D. H.
see **Novak, G. E.**
Stoneking, J. E., and Sheth, H.
Analysis of a Large Saddle Supported Horizontal Pressure Vessel. 77—PVP-18.
Storms, M. A., and Gerken, J. H.
Glomar Challenger's Deep Water Reentry Cone/Dual Casing Hanger System. 77—Pet-75.
Stoudt, R. A.
see **Lawit, R. L.**
Stowell, G. W.
see **Colsher, R. W.**
Straatmann, J. A., Grobner, P. J., and Sponseller, D. L.
Results of Sulfide Stress Cracking Tests in Different Laboratories on SAE 4135 Steel Modified with 0.75% Mo and 0.035% Cb. 77—Pet-48.
Streeter, R. L.
Putting the Heat in Waste Gas Streams to Work - A New Look. 77—IPC-Pwr-7.
Strong, R. E.
Combined Cycles for Operation on Coal Derived Fuels with High Temperature Combustion Turbines. 77—WA/Ener-14.
Strunk, J. F.
Application of NE-3000 Rules. 77—PVP-25.
Stuchly, J.
see **Walker, G.**
Sturge, D. P.
Compressible Flow in a Centrifugal Impeller with Separation: A Two-Dimensional Calculation Method. 77—WA/FE-8.
Sturgess, G. J., and Lenertz, J. E.
Account of Mainstream Turbulence for Predicting Film Cooling Effectiveness in Gas Turbine Combustors. 77—HT-10.
Sullivan, D. F.
see **Nelson, F. C.**
Sullivan, L. P.
Control Systems for Waste Fuel Burners in Industrial Steam Generators. 77—IPC-Pwr-6.
Sundaram, T. R., and Santo, J. E.
Removal of Suspended and Colloidal Solids from Waste Streams by the Use of Cross-Flow Microfiltration. 77—ENAs-51.
Sunderland, J. E.
see **Rudland, R. S.**
Suratt, W. B., and Hart, G. K.
Testing of Direct Contact Heat Exchangers for Geothermal Brines. 77—HT-4.
Surjaatmadja, J. B., and Fitch, E. C.
Output Circuit Selection and Output Feedback in Fluid Logic Synthesis. 77—WA/FIcs-11.
Sutton, T.
see **Bervig, D.**
Suydam, C. D., and Duzy, A. F.
An Economic Evaluation of Washed Coal for the Four Corners Generating Station. 77—WA/CD-2.
Suzuki, H.
see **Chan, T. Y.**
Swaminadham, M.
Study of the Vibrations of Rotating Blades. 77—DET-147.
Swank, L. R.
see **Uy, J. C.**
Swanson, S. R., Sandquist, G. M., and Kunze, J. F.
Forced Convective Heat Transfer in Porous Media with Small Biot Number. 77—HT-96.
Swartz, H. M.
see **Rodgers, R. C.**
Swearingen, J. S.
see **Holm, J.**
Sweet, H. C.
see **Johnson, R. D.**
Swenson, G. S.
The Environmental Impact Statement Expectations and Results. 77—RC-2.
Szego, J., and Schmidt, F. W.
Transiant Behavior of a Solid Sensible Heat Thermal Storage Exchanger. 77—HT-37.

T

Tabakoff, W., Hosny, W., and Hamed, A.
Computation of the Temperature Distribution in Cooled Radial Inflow Turbine Guide Vanes. 77—GT-83.
Tabakoff, W.
see **Hamed, A.**
Taborek, J.
see **Ishihara, K.**
Taft, C. K., and Twill, J. P.
The Stability of the Three-Way Underlapped Hydraulic Spool Servovalve. 77—WA/FIcs-9.
Takebe, F. K., Daimon, Y., and Ejima, S.
An Application of TF25 Gas Turbine Engine to Hovercraft Operation in Japan. 77—GT-90.
Takeda, R.
Current Meter Corrections for Turbulence. 77—WA/FM-3.

Takizawa, M., Sasaki, S., and Mizumachi, N.
A Study of an Advanced Automotive Radial Turbine. 77—GT-6.
Talapatra, D. C.
see **Labra, J. J.**
Talwar, R., and Dilpare, A. L.
A Two-Dimensional Numerical Solution to Freezing/Melting in Cylindrical Coordinates. 77—WA/HT-11.
Tanaka, K., Baba, T., Ishikawa, J., and Ueno, T.
Manufacturing Method of Large-Size Marine High-Precision Gears. 77—DET-35.
Tanaka, S.
see **Ishibashi, A.**
Tanaka, T.
An Experimental Study of Diagonal Flow Propeller Pump: Design Performance with Various Types of Blading. 77—WA/FE-9.
Tanaka, T.
see **Miyoshi, E.**
Tandberg, R. E., and Helfinstine, R. A.
Effects of Variation in Velocity Profiles on a Simulated Submarine Pipeline. 77—WA/OCE-4.
Tashiro, S.
see **Sasaki, Y.**
Taulbee, D. B.
see **Yu, C. P.**
Taylor, I.
The Most Persistent Pump-Application Problem for Petroleum and Power Engineers. 77—Pet-5.
Taylor, J. G.
see **Calhoun, M. B.**
Taylor, J. J.
see **Hoyt, J. W.**
Teixeira, D. P., White, D. J., and Ward, M. E.
Evaluation of a Premixed, Prevaporized Gas Turbine Combustor for No. 2 Distillate. 77—GT-69.
Teli, N. E., Moussa, N. A., and Cravalho, E. G.
Kinetics of Thermal Injury of Cell Populations Exposed to Supraphysiological Temperatures. 77—WA/HT-44.
Tepper, E. H., and Moore, E. K.
Development of a Lightweight Long Life Heat Exchanger. 77—ENAs-29.
Terry, M. C., "Bill".
The Offshore LNG Facility - 1977 Status Review. 77—Pet-83.
Thiele, R. J., Secord, T. C., and Murphy, G. L.
Space Construction Base Support Requirements for Environmental Control and Life Support Systems. 77—ENAs-44.
Tholen, P., and Killmann, I.
Investigations on Highly Turbocharged Air-Cooled Diesel Engines. 77—DGP-11.
Thoma, F. A.
Pitting Can Be Caused by Inadequate Lubrication. 77—DET-114.
Thomas, J.
see **Abbas, B. A. H.**
Thomas, P. J.
see **Kennedy, L. A.**
Thompson, C. D.
see **Kleiner, G. N.**
Thorne, W. L.
see **Hassberger, J. A.**
Thornton, G. K.
see **Bailey, R. L.**
Thulien, P., Litz, D. C., and Wedman, L. N.
A Pulsed Homopolar Machine with Superconducting Field Coils. 77—WA/HT-35.
Thulien, P.
see **Shevchuk, G. J.**
Tien, C. L.
see **Bejan, A.**
Tilliette, Z. P., Pierre, B., and Jude, P.
Description, Output and Development of a 750 C Helium Direct Cycle Nuclear Power Plant with a Single Turbomachine and Intermediate Cooling. 77—GT-2.
Token, K. H.
A New Avionics Thermal Control Concept. 77—ENAs-14.
Tomabechi, M.
see **Matsumoto, M.**
Tong, K. J.
Inelastic Stress Distribution in Tubesheet Ligaments Under Thermal and Mechanical Loading. 77—JPGC-NE-22.
Torda, T. P., and Joshi, D. S.
New Directions in Engineering Education Suggestions for Developed Countries. 77—WA/TS-6.
Tordion, G. V.
see **Cardou, A.**
Torisaki, T.
see **Matsuki, M.**
Torvik, P. J.
Application of an Eigenfunction Expansion to the Determination of Stress-Intensity Factors. 77—WA/GT-1.
Townes, H. W.
see **Sande, C. K.**
Townshend, A. R.
see **Pancuska, V. L.**
Toyoda, J.
see **Ito, Y.**
Tribollet, B.
see **Deslouis, C.**
True, H. C.
see **Galloway, W. J.**
Trzeciak, J. M.
see **Sposito, V. A.**
Tsai, Y. J.
Sediment Control for a Power Plant Intake Screenwell. 77—JPGC-Pwr-15.
Tsay, C. S.
see **Reddy, J. N.**
Tseka, J., and Letton, G. C.
Variable Geometry Air Cycle Machine. 77—ENAs-7.
Tsubuku, T.
see **Yuruzume, I.**
Tsukuda, Y., and Hiura, H.
Development of 25,000 Kw Class Two Shaft Gas Turbine. 77—Pet-43.
Tucker, A. I.
Bevel Gears at 203 Meters per Second (40,000 FPM). 77—DET-178.
Tucker, A. I.
The Spring of the Ring. 77—DET-125.
Tulin, M. P.
see **Fruman, D. H.**
Turnbull, S. R., Nicol, S. W., and Fawcett, J. N.
An Experimental Investigation of the Dynamic Behavior of a Roller Chain Drive. 77—DET-168.
Turner, D. M.
Rod Bundle Film Boiling Heat Transfer Experiments. 77—HT-94.
Turner, H. G., and Shube, E. E.
The Spill Control and Recovery Valve. 77—GT-56.
Twill, J. P.
see **Taft, C. K.**

U

Ueng, C. E. S.
Seismic Integrity Analysis of Instrumentation Cabinets. 77—PVP-60.
Ueno, T.
see **Ishibashi, A.**
Ueno, T.
see **Tanaka, K.**
Uy, J. C., Williams, R. M., and Swank, L. R.
Design Properties of Silicon Nitride for High Temperature Gas Turbine Application. 77—GT-55.

V

Vachon, R. I.
see **Morehouse, J. H.**
Valente, C. G.
see **Rodgers, D. N.**
Van Alphen, G. W. H. M.
see **Graebel, W. P.**
Vanderschmidt, G. F., and Hart, F. T.
Development of a Training Program for Compliance with the Consumer Products Safety Act. 77—RC-14.
Van Fossen, D. B.
Repetitive Substructures for Pressure Vessel Analysis. 77—PVP-28.
Van Hees, W., Lard, E. W., and McMinn, D. R.
A Continuous Shipborad Laundry Wastewater Treatment and Recycling System. 77—ENAs-40.
Van Hien, P.
see **Hayashi, K.**
Van Staalduinen, P.
COGOG Propulsion Installations in Guided Missile and Standard Class Frigates of the Royal Netherlands Navy. 77—GT-68.
Van Wanderham, M. C.
see **Carruthers, W. D.**
Varde, K. S.
Optical Fringe Displacement as a Measure of Temperature Profile. 77—WA/TM-5.
Varghese, G., Mohana Kumar, T. C., and Rao, Y. V. N.
Influence of Volute Surface Roughness on the Performance of a Centrifugal Pump. 77—FE-8.
Vaughan, D. A.
see **Krause, H. H.**
Vaughen, M. R.
see **Carriere, D. L.**
Velkoff, H. R., and Kulacki, F. A.
Electrostatic Cooling. 77—DE-36.
Venable, C. R.
Utilization of Refractory Concretes in Refining and Petrochemical Operations. 77—Pet-35.
Venhuis, D.
see **Schmidt, W.**
Venkatesh, V. C.
see **Krishnamurthy, R.**
Vepa, K.
see **McDonald, C. F.**
Verderosa, M. A., and Bazinet, G. D.
Development of Small Sodium Valves for the Fast Flux Test Facility. 77—WA/NE-13.
Vieillard-Baron, B.
Properties of a Special A 387gr5 Steel. 77—Pet-59.
Viet, L.
see **Deslouis, C.**
Viskanta, R.
see **White, R. D.**
Voiland, E. E.
see **Denio, L. L.**
Vosch, R. J.
see **AbuRomia, M. M.**
Vyas, B. D.
see **Sharp, J. J.**

W

Wadkins, R. P.
see **Lussie, W. G.**
Waibel, R. T.
see **Steward, F. R.**
Waldron, W. D.
see **Krauter, A. I.**
Walker, B. H.
see **Carruthers, W. D.**
Walker, C. J.
see **Beaudry, J. M.**
Walker, G., Read, M. J., and Stuchly, J.
The Internally Insulated Liquid Natural Gas Pipeline for Arctic Gas Recovery. 77—WA/HT-17.
Wall, F. M.
see **Bailey, T.**
Walser, A.
Concrete Containments and the ASME Code, Section III, Division 2. 77—PVP-24.
Walter, D. K.
Waste Resources - Problems and Promise. 77—ENAs-49.
Walter, G. H.
see **Sharma, V. K.**
Walzer, P.
see **Koehler, M.**
Wambsganss, M. W.
see **Shin, Y. S.**
Ward, C. A.
see **Forest, T. W.**
Ward, M. E.
see **Teixeira, D. P.**
Ward, R. M.
see **Woods, R. L.**
Ward, T. M.
Cash Flow and the Analysis of Capital Investments. 77—WA/Mgt-3.
Warden, D. A.
Vent Valve Reaction Force. 77—PVP-52.
Warren, W. B.
see **Fox, M.**
Warrington, R. O.
see **Mussulman, R. L.**
Watanabe, M.
see **Kamijo, K.**
Watanabe, T.
see **Nakanishi, K.**
Waters, E. O.
see **Schneider, R. W.**
Wattenbarger, J. F.
A Development Program in Diver Thermal Protection. 77—ENAs-59.
Wazyniak, J. A., Shaw, L. M., and Essary, J. D.
Characteristics of an Anechoic Chamber for Fan Noise Testing. 77—GT-74.

Weaver, D. S., Adubi, F. A., and Kouwen, N.
Flow Induced Vibrations of a Hydraulic Valve and Their Elimination. 77—FE-24.
Weber, D.
see **Buxmann, J.**
Weber, H. E.
Boundary Layer Calculation for Analysis and Design. 77—WA/FE-25.
Weber, H. G.
see **Ghuman, A. S.**
Webster, J.
see **Boehm, R.**
Webster, J. J.
see **Fessler, H.**
Wedman, L. N.
see **Thullen, P.**
Wehr, A. G.
see **Murphree, D. L.**
Wehrfritz, T. J., and DelValle, R. J.
Process Noise Control: A Critical Application that Worked. 77—RC-12.
Weidenhamer, G. H., and Lindner, R.
Acoustic Radiation from a Venturi Type Flowmeter Due to Hydrodynamic Excitation (LWBR Development Program). 77—DET-165.
Weinberg, L.
see **Lee, Y. J.**
Weissgerber, J.
see **Charalambus, B.**
Weissman, G. F.
see **Hart, R. R.**
Welbourn, D. B.
Gear Noise Spectra - A Rational Explanation. 77—DET-38.
Welch, A. J.
see **Priebe, L. A.**
Welliver, D. R.
see **Groenewold, G. M.**
Welsh, W. P.
see **Ortolano, R. J.**
Wender, P. J.
see **Smith, P. R.**
Werle, M. J.
see **Polak, A.**
Werner, H., Ekman, S., and Boltshauser, H.
Operational and Maintenance Experience of an Industrial Type 14-MW Gas Turbine. 77—GT-78.
Wessling, F. C.
Periodic Temperature of a Finite Wall Subjected to Periodic Heat Flux and Exposed to a Fluid with Periodic Temperature Variation. 77—WA/Sol-6.
West, S. J., Frant, M. S., and Franks, S. H.
Preliminary Design of a Preprototype Water Quality Monitor. 77—ENAs-36.
Westcott, V. C.
Contamination in Lubrication Systems. 77—WA/Lub-1.
Westmoreland, J. S.
see **Carlson, N. G.**
White, A. A.
see **Panjabi, M. M.**
White, B. F.
see **Hundal, M. S.**
White, D. J.
see **Teixeira, D. P.**
White, P. R., and Garrett, R. E.
A Hierarchal Data Organization - Facilitating Interactive Three-Dimensional Design. 77—DET-108.
White, P. R., and Garrett, R. E.
A Practical System for Computer Generated Display of Three Dimensional Designs. 77—DE-31.
White, R. D., Bathelt, A. G., Leidenfrost, W., and Viskanta, R.
Study of Heat Transfer and Melting Front from a Cylinder Imbedded in a Phase Change Material. 77—HT-42.
Wierman, R. W.
see **Hassberger, J. A.**
Wilby, J. F.
see **Galloway, W. J.**
Wiley, A.
see **Bervig, D.**
Wilkowski, G. M., Maxey, W. A., and Eiber, R. J.
Use of a Brittle Notch DWTT Specimen to Predict Fracture Characteristics of Line Pipe Steels. 77—Pet-21.
Williams, J. L., and French, R. J.
Space Shuttle Orbiter Radiator System. 77—ENAs-33.
Williams, R. M.
see **Uy, J. C.**
Willis, W. S.
Quiet, Clean, Short-Haul Experimental Engines (QCSEE) - A Technology Development Program. 77—GT-109.
Wilson, D. E., Panton, R. L., and Stearman, R.
Peristaltic Pumping by a Lateral Bending Wave. 77—WA/Bio-12.
Wilson, E. A.
Packaging a Computer by Site - A New Efficient Approach. 77—DE-19.
Wimpress, N.
A Method for Predicting Fired Heater Performance. 77—Pet-10.
Winkler, H. E.
see **Lantz, J. B.**
Winnick, J.
see **Abdel-Salam, O. E.**
Wolbers, H. L.
see **Gunkel, R. J.**
Wolf, S., France, D. M., and Holmes, D. H.
Recent Advances in Evaluating Critical Heat Flux Conditions in LMFBR Steam Generators. 77—WA/NE-11.
Wong, H. W.
see **Chao, E. Y.**
Wongphadung, S.
see **Durocher, L. L.**
Woo, H. K.
see **Huang, C. L. D.**
Wood, J. L.
see **Desai, P. V.**
Woodman, B. W.
see **Lawrence, F. D.**
Woodruff, G. L.
Nuclear Proliferation and Nuclear Power. 77—WA/TS-1.
Woods, M.
see **Bowman, H. F.**
Woods, R. L., Arnott, J. J., Auld, R. M., Harrison, D. G., and Ward, R. M.
Jet Partitioned Fluid Amplifiers. 77—WA/Flcs-2.
Woods, R. R.
see **Marshall, R. D.**
Wrenn, K. F., Heard, T. C., and Lang, R. P.
Experience with Gas/Steam Combined Cycle Turbines on a Natural Gas Pipeline. 77—GT-8.
Wright, J.
Shaft Couplings and the Cinderella Syndrome. 77—DET-132.
Wu, C. G., and Chern, J. M.
Nonlinear Buckling of Turbular Columns. 77—PVP-55.
Wuest, L. J.
see **Steward, F. R.**
Wydeven, T.
see **Ballou, E. V.**
Wynveen, R. A.
see **Schubert, F. H.**
Wynveen, R. A.
see **Shumar, J. W.**

Y

Yada, T.
Planetary Ball Drive Mechanism (PLABALL). 77—DET-170.
Yamazaki, S.
see **Nakanishi, K.**
Yan, M. M., and Huang, P. N. S.
Perturbation Solutions to Phase Change Problem Subject to Convection and Radiation. 77—WA/HT-16.
Yarborough, F. B.
see **Petersen, R. S.**
Yeh, Y. C.
see **Knoebel, D. H.**
Yen, H. H.
see **Kao, G. C.**
Ying, A. S.
see **Eckels, P. W.**
Yip, F. C.
see **Hwang, C. T.**
Yoshida, A.
see **Fujita, K.**
Young, C.
Rock Breakage with Pulsed Water Jets. 77—Pet-78.
Younghouse, E. C., and Schmidt, R. P.
A New Generation Lubricant for Extended Drain Diesel Service. 77—DGP-16.
Yousef, W. W., and MacDonald, J. A.
Analytical Approach for the Design of Fine-Metering Valves. 77—WA/FE-24.
Yu, C. P., Rajaram, S., and Taulbee, D. B.
Air Mixing in a Model Lung Alveolus. 77—Bio-4.
Yu, W. S.
see **Fillo, J. A.**
Yuan, S. W., Bloom, A. M., and Nazli, M.
Heat Transfer in Solar Energy Storage. 77—HT-38.
Yuan Hsiao, C. Y.
see **Hsiao, C. Y. Y.**
Yuruzume, I., Mizutani, H., and Tsubuku, T.
Transmission Errors and Noise of Spur Gears Having Uneven Tooth Profile Errors. 77—DET-51.

Z

Zakin, J. L., Pinaire, R., and Borgmeyer, M. E.
Transport of Crude Oil as Oil-in-Water Emulsions. 77—FE-26.
Zauderer, B., Marston, C. H., Davis, L. K., Rogers, D. A., Bazan, J., and Parsons, J.
Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation. 77—WA/Ener-8.
Zehnder, G., and Meier, E.
Exhaust-Gas Turbochargers and Systems for High-Pressure Charging. 77—DGP-12.
Zellmer, J.
see **Kim, Y. S.**
Zeltmann, E. W.
The Need for Cost/Benefit Analysis When Developing Environmental Standards. 77—GT-89.
Zerrmayr, F.
see **Charalambus, B.**
Zien, H. M.
see **Schultz, C. C.**
Zimmerman, D. R., and Abbott, D. E.
An Experimental Investigation of a Three-Dimensional Turbulent Boundary Layer. 77—WA/FE-22.
Zorowski, C. F., and Nau, J. M.
Modeling and Analysis for Seismic Adequacy in Air Handling Unit Enclosures. 77—DET-136.
Zsolcsak, S. J.
see **DeChoudhury, P.**
Zuber, N.
see **Jones, O. C.**
Zuladzinski, G.
Effect of Centrifugal Forces on Lateral Deflection and Fundamental Frequency of Turbine Blade. 77—Pet-12.

Index to
MECHANICAL ENGINEERING

Volume 100, January-December 1978

A

Abbas, B. A. H. Dynamic Stability of Fixed-Fixed and Free-Free Timoshenko Beams Resting on an Elastic Foundation (77-DET-134) (A) **F 127**

Abbott, D. E. An Experimental Investigation of a Three-Dimensional Turbulent Boundary Layer (77-WA/FE-22) (A) **Ap 96**

Abbots, J. *(author)* The Menace of Atomic Energy (CB) **My 105**

Abdelhamid, A. N. Experimental Investigation of Unsteady Phenomena in Vaneless Radial Diffusers (78-GT-23) (A) **Jl 89**

Abedi-Hayati, S. Control of a Single-Actuator Shaking Table (77-WA/Aut-11) (A) **Je 103**

Abdel-Salam, O. Molten-Carbonate CO_2 Concentrator: Preliminary Experiments (78-ENAs-2) (A) **N 110**

Abeles, F. Firefighters Integrated Response Equipment System (78-ENAs-39) (A) **N 113**

Abo-El-Ata, M. M. Development of Structural Design Criteria for Highly Irradiated Core Components (78-PVP-78) (A) **N 121**

Abou-Sayed, A. S. On the Stimulation of Geothermal Reservoir by Downward Hydraulic Fracturing (77-Pet-81) (A) **Ja 107**

Abrahami, A. Opposed to P.E. Registration (C) **N 58**

Absorbers
Alternative Tuned Absorbers for Steady-State Vibration Control of Tall Structures (77-DET-84) (A) **Ja 115**
Beamlike Dynamic Vibration Absorbers (77-DET-176) (A) **F 131**

Absorption Refrigerating System
Design of a Combined Solar Collector/Absorber/Desorber for a Solid-Absorption Refrigerating System (78-HT-35) (A) **O 95**

AbuRomia, M. M. Flow Model Test Development of CRBRP Intermediate Heat Exchanger (77-JPGC-NE-10) (A) **Mr 90**

Aburwin, B. A. The Effect of a Transversely Injected Stream on the Flow Through Turbine Cascades: Part 3—Influence of Aspect Ratio (78-GT-24) (A) **Jl 89**

Accelerating Protons
Carter O.K.'s Energy Accelerator (NB) **Ap 71**

Acceleration Data
The Prediction of Passenger Riding Comfort from Acceleration Data (77-WA/Aut-6) (A) **Je 102**

Acceleration Discontinuities
Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) (A) **Ap 94**

Acceleration Time History
Control of a Single-Actuator Shaking Table (77-WA/Aut-11) (A) **Je 103**

Acceptance Criteria
An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) (A) **O 101**

Accident Probes
Panel Urges More Accident Probes by OSHA (NR) **N 77**

Acid Digestion
Acid Digestion and Pressurization Control in Combustible Radwaste Treatment (78-NE-17) (A) **N 115**

Ackerman, A. J. The Atomic Power Insurance Act Violates The Constitution of The United States (77-WA/TS-5) (A) **My 98**

Acoustic Emission Monitoring
Acoustic Emission Monitoring During Rupture Test of Pressure Vessel and Laboratory Fracture Test (78-PVP-18) (A) **O 104**

Months are denoted by **boldface** letters:

January	**Ja**	July	**Jl**
February	**F**	August	**Ag**
March	**Mr**	September	**S**
April	**Ap**	October	**O**
May	**My**	November	**N**
June	**Je**	December	**D**

CODE

(A)	Abstract
(AC)	Author's Closure
(BR)	Book Review
(BTR)	Briefing the Record
(C)	Letters & Comments
(CT)	Computers and Technology
(CC)	Convocation Communiqués
(CB)	Current Books
(D)	Discussion
(Ed)	Editorial
(EN)	Educational News
(ES)	Energyscope
(IF)	International Focus
(NB)	News Brief
(NR)	ME News Roundup
(PS)	Personally Speaking
(TL)	Technical Literature
(WW)	Washington Window

Acoustic Emission Technology
Acoustic Flaw Detector (BTR) **O 52**

Acoustic Pressure Distribution
Pump-Induced Acoustic Pressure Distribution in an Annular Cavity Bounded by Rigid Walls (78-PVP-69) (A) **N 120**

Acoustic Radiation
Acoustic Radiation from a Venturi Type Flowmeter Due to Hydrodynamic Excitation (LWBR Development Program) (A) **F 130**

Acoustic Signatures
Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) (A) **Mr 84**

Acoustic Space
A Strategy for the Optimum Design of Acoustic Space (77-DET-44) (A) **Ja 111**

Acoustical Disturbances
Thermal-Acoustical Phenomena in Pulsed High-Energy Lasers (78-HT-61) (A) **O 98**

Acoustical Noise
Predicting Acoustical Noise Generation in Complex Mechanical Systems (78-DET-60) (A) **D 93**

Acronymphomania
"Acronymphomania" (BTR) **N 68**

Acrylic Plastic Windows
Effect of Weathering and Submersion in Seawater on the Mechanical Properties of Acrylic Plastic (77-WA/Oce-5) (A) **Ap 92**
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) (A) **Ap 92**
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) (A) **Ap 92**

Acrylic Spheres
Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) (A) **Ap 92**

Active Control Scheme
Feasibility of an Active Control Scheme for Above Knee Prostheses (77-Bio-8) (A) **Ap 98**

Actuator Disks
Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**

Actuators
Interactive Modeling and Analysis of Open or Closed Loop Dynamic Systems with Redundant Actuators (78-DET-42) (A) **D 92**

Adair, S. Slip Ring Eliminator, A Clock-Spring Approach (78-DET-3) (A) **D 87**

Adams, C. E. Review of Wear Problems in the Computer Industry (77-Lub-4) (A) **F 132**

Adams, D. F. The Influence of Material Variability on the Predicted Environmental Behavior of Composite Materials (77-WA/Mat-9) (A) **Je 109**

Adams, G. G. The Plane Symmetric Contact Problem for Dissimilar Elastic Semi-Infinite Strips of Different Widths (77-WA/APM-13) (A) **Jl 97**

Adams, R. G. Bearing Compartment Seal Systems for Turbomachinery in Direct-Cycle HTGR Power Plants (78-GT-38) (A) **Jl 91**

Adaptive Control
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/Prod-19) (A) **Je 105**

Addie, A. N. Energy Requirements of the Rail Mode (78-RT-1) (A) **O 90**

Additive Requirement
Spectrometric Analysis of Residual Fuel (78-GT-93) (A) **Ag 107**

Adell, H. Effect of Axial Force on Dynamic Fracture of a Beam or Plate in Pure Bending (77-WA/APM-22) (A) **Jl 98**

Adhesive Bonds
Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) (A) **Je 109**

Adhesive Joints
Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) (A) **Je 110**

Adhesive Layers
The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) (A) **Je 108**

Adhesively Bonded Joints
Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) (A) **Je 110**

Adhesively Bonded Metallic Structures
Fatigue Crack Propagation in 8 and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) (A) **Je 109**

Adhesively Bonded Panels
Fracture Analysis of the Adhesively Bonded Cracked Panels (77-WA/Mat-2) (A) **Je 108**

Adhesively Bonded Structures
Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) (A) **Je 110**
Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) (A) **Je 109**

Adjustable Linkages
Technology Transfer in the Design of Adjustable Linkages (78-DET-67) (A) **D 94**

Adkins, R. C. The Effect of Compressor Exit Flow Dis-

tribution on Air Placement in Annular Combustors (78-GT-84) (A) **Ag 106**

Adler, A. Telemetry for Rotating Measurements on Turbomachinery (78-GT-105) (A) **Ag 108**

Advanced Energy Storage
Flywheels Could Double Gas Mileage (BTR) **D 39**

Advanced Technology
Solar Heating and Cooling: Recent Advances (CB) **Mr 101**

Advanced Turbofan Engines
Advanced Turbofan Engines for Low Fuel Consumption (78-GT-192) (A) **S 76**

Advani, S. H. Stress Response Investigations Related to In-Situ Gasification of Coal (77-Pet-25) (A) **Ja 101**

Aerial Platform
Versatile Mobile Platform (IF) **Ja 68**

Aerodynamic Design
Development and Closed-Loop Testing of High Efficiency Compressors for Use with a 7000-kW Gas Turbine (78-GT-189) (A) **Ag 117**
A High Temperature Turbine Research Module (77-GT-73) (A) **Ag 105**

Aerodynamic Development
Aerodynamic Development of Stages for Industrial Centrifugal Compressors. Part 1: Testing Requirements and Equipment—Immediate Experimental Evidence (78-GT-4) (A) **Jl 87**; Part 2: Test Data Analysis, Correlation and Use (78-GT-5) (A) **Jl 87**

Aerodynamic Drag
A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) (A) **Ap 95**
A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) (A) **Ap 96**
A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Crag of Tractor-Trailer Trucks (77-WA/FE-15) (A) **Ap 95**

Aerodynamic Force
Aerodynamic Force and Moment on Oscillating Airfoils in Cascade (78-GT-181) (A) **S 75**
Direct Blade Force Measurements in Transonic Cascade Flows (78-GT-45) (A) **Jl 93**
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) (A) **Ag 110**

Aerodynamic Response
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) (A) **Ag 109**

Aerodynamic Solutions
A Rational Analysis of Periodic Flow Perturbation in Supersonic Two-Dimensional Cascade (78-GT-176) (A) **S 74**

Aerodynamic Surfaces
Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**

Aerodynamics
Aerodynamic Testing of a Low Stimulus, Efficient Exhaust Hood-Industrial Turbines (77-JPGC-Pwr-2) (A) **Mr 88**
A Design Point Correlation for Losses due to Part-Span Dampers on Transonic Rotors (78-GT-153) (A) **Ag 115**
Erosion Study in Turbomachinery Affected by Coal Ash Particles (78-GT-136) (A) **Ag 113**
Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-GT-185) (A) **S 75**
Powerplant Integration—the Application of Current Experience to Future Developments (78-GT-113) (A) **Ag 106**
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) (A) **F 123**
Synthesis of Blade Flutter Vibratory Patterns Using Stationary Transducers (78-GT-160) (A) **Ag 116**
Recent Experience on Centrifugal Compressors for Small Gas Turbines (78-GT-193) (A) **S 76**
Teaching of the Fluid Mechanics of Turbomachines (78-GT-161) (A) **Ag 116**

Aeroelastic Instability
On the Flutter Instability of a Suspension Bridge Using the Finite Element Method (77-DET-140) (A) **F 128**

Aeroelastic Stability Analysis
Aeroelastic Stability Analysis of Supersonic Cascades (78-GT-151) (A) **Ag 115**

Aero-Engines
Future Prospects for Naval Propulsion Gas Turbines (78-GT-106) (A) **Ag 109**

Aeronautical Gas Turbine
Training in the Gas Turbine Field in Belgium, in France, in Italy (78-GT-169) (A) **Ag 117**

Aerosol Generator
Smoke Detector Tester (BTR) **Jl 50**

Aerospace Engineering
Propulsion Test Facilities Technical Capabilities and International Use (78-GT-184) (A) **S 75**

Aerospace Heat Exchangers
A High-Effectiveness Regenerator Design Concept (78-GT-78) (A) **Ag 105**

Agarwal, G. C. Compliance of the Human Ankle Joint (77-WA/Bio-2) (A) **Mr 97**

Age Discrimination
Age Discrimination Booklet (NB) **Ag 75**

Agrawal, R. K. An Analysis Procedure for the Validation of On-Site Performance Measurements of Gas Turbines (78-GT-152) (A) **Ag 115**

Agrest, J. Elections to Fellow Grade **F 120**

Agricultural Equipment
Costs Down 20 Percent with Digital Readout (BTR) **Ap 52**

Agricultural Technology
Ol' Sol in Agricultural Technology (BTR) **S 53**

Agriculture
All-Purpose Plant (BTR) **Ja 55**
Nitrogen Fixation Research (BTR) **N 62**
Potted at the Power Plant (BTR) **Ap 55**

Ahlbeck, D. R. Techniques for Measuring Wheel/Rail Forces with Trackside Instrumentation (77-WA/RT-9) (A) **Mr 85**

Ahmad, A. Displacement Analysis of RRGRR Mechanism (78-DET-8) (A) **D 88**

Ahmad, J. On the Use of Strain Energy Density Fracture Criterion in the Design of Gears Using Finite Element Method (77-DET-158) (A) **F 129**

Ahmaki, B. Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) (A) **Jl 88**

Ainoura, M. Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) (A) **F 122**

Air Bearing Cooling Turbines
The Application of Foil Air Bearing Turbomachinery in Aircraft Environmental Control Systems (78-ENAs-18) (A) **N 111**

Air Cargo Forum
Air Cargo Forum (NR) **Ag 73**

Air Conditioning
Heat and Air Conditioning from Factory Trash (BTR) **Ja 58**

Air Conditioning System
F-18 Air Conditioning System (78-ENAs-23) (A) **N 112**

Air-Cooled Blades
Operating Experience on Residual Fuel Oil with A W251 Combustion Turbine (78-GT-104) (A) **Ag 108**

Air-Cooled Turbine Blades
A Study of Thermal Fatigue Life Prediction of Air-Cooled Turbine Blades (78-GT-63) (A) **Jl 95**

Air Decompression Devices
A Specialized Microprocessor System for Decompression Management of Deep Diving (77-WA/Oce-7) (A) **Ap 93**

Air Energy Storage
Compressed Air Energy Storage Turbomachinery (78-GT-97) (A) **Ag 108**

Air Handling Unit Enclosures
Modeling and Analysis for Seismic Adequacy in Air Handling Unit Enclosures—The Effects of Structural Reinforcement (77-DET-136) (A) **F 127**

Air Heat Exchangers
Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**

Air Jet
Heat Transfer Augmentation Using a Corona Discharge Air Jet (78-ENAs-8) (A) **N 111**

Air-Launched Missiles
An Approach to Solving Controls Compartment Heating Problems on Air-Launched Missiles (78-ENAs-12) (A) **N 111**

Air Placement
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) (A) **Ag 106**

Air Pollution
Air Pollution (CB) **Je 112**
Charged Filters Could Cut Pollution Costs by 80 Percent (EN) **Je 76**
New Air Pollution Technology (ES) **My 21**

Air Pollution Controls
Ambient Ground-Level Sulfur Dioxide Concentrations in the Vicinity of a Multiple Stack Power Plant During and After Operation (77-WA/APC-4) (A) **My 102**
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) (A) **My 102**
Electrostatic Filtration (EN) **Ap 75**
Environmental Monitoring Data Acquisition Computer System (EMD-ACS) (77-WA/APC-3) (A) **My 102**
Evaluation of Two Industrial Boilers with Combustions Modifications for Reduced Pollutant Emissions (77-WA/APC-1) (A) **My 101**
Factors Detrimental to Electrostatic Precipitator Performance (77-WA/APC-7) (A) **My 101**
Fume Formation in Amonia Scrubbers (77-WA/APC-2) (A) **My 101**
Problems in Control of Particulates in Bulk Material Handling (77-WA/APC-5) (A) **My 102**
TVA's Cocurrent Scrubber Evaluation (77-WA/APC-8) (A) **My 102**

Air Pollution Data
Environmental Monitoring Data Acquisition Computer System (EMD-ACS) (77-WA/APC-3) (A) **My 102**

Air Protected Blades
Transpiration Air Protected Turbine Blades—An Effective Concept to Achieve High Temperature and Erosion Resistance for Gas Turbines Operating in an Aggressive Environment (78-GT-100) (A) **Ag 108**

Air Quality Impacts
The Effectiveness of Flue Gas Desulfurization Systems in Reducing Power Plant Ambient Quality Impacts (77-JPGC-Pwr-6) (A) **Mr 88**

Air Transportation
Evolution of The Turboprop for High Speed Air Transportation (78-GT-201) (A) **S 77**

Air-Vapor Dynamics
Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) (A) **Ap 94**

Airborne Noise Spectra
Quiet Vent Valve Design and Airborne Noise Spectra (77-WA/Fcs-12) (A) **Ap 98**

Aircraft
Advanced Environmental Cooling Concepts for Supersonic Aircraft (78-ENAs-21) (A) **N 112**
Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) (A) **Je 110**
JT10D Engines: 25,000—35,000-lb Thrust Range (BTR) **O 51**
An Evaluation Technique for Determining the Cost Effectiveness of Condition Monitoring Systems (78-GT-166) (A) **Ag 116**
Evolution of The Turboprop for High Speed Air Transportation (78-GT-201) (A) **S 77**
Full Authority Digital Electronic Control—Highlights of Next Generation Propulsion Control Technology (78-GT-165) (A) **Ag 116**
Military Engine Usage Monitoring Developments in the United Kingdom (78-GT-65) (A) **Jl 95**
Physiological Requirements for Design of Environmental Control Systems: Control of Heat Stress in High-Performance Aircraft (78-ENAs-22) (A) **N 113**
Propulsion System Considerations for the Subsonic V/STOL (78-GT-57) (A) **Jl 94**
Simulation of Helicopter Powerplant Performance (78-GT-51) (A) **Jl 93**

Aircraft Afterburners
Jet Curtain Flameholder for Aircraft Afterburners (78-GT-95) (A) **Ag 107**
Tilt Rotor Research Aircraft (BTR) **Je 55**

Aircraft Development
Development of an Inlet for a Tilt Nacelle Subsonic V/STOL Aircraft (78-GT-121) (A) **Ag 111**

Aircraft Engines
Advanced Turbofan Engines for Low Fuel Consumption (78-GT-192) (A) **S 76**
Aircraft Engines of the Future (ES) **Ag 23**
The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) (A) **Ag 106**
Making Tubofan Engines More Energy Efficient (78-GT-198) (A) **S 76**
20 HP Mini-RPV Demonstrator Engine Programs (78-GT-200) (A) **S 76**

Research of the XF3-1 Turbofan Engine (78-GT-199) (A) **S 76**

Aircraft Enviromental Control System

The Application of Foil Air Bearing Turbomachinery in Aircraft Environmental Control Systems (78-ENAs-18) (A) **N 111**

Aircraft Fuel Pumps

Aircraft Fuel Pumps—Where We're At (A Review of Some Problems and Their Current Solutions) (78-GT-10) (A) **Jl 88**

Aircraft Fuels

Alternative Aircraft Fuels (78-GT-59) (A) **Jl 94**

Aircraft Gas Turbine

Wide Range Operation of Advanced Low NO_x Aircraft Gas Turbine Combustors (78-GT-128) (A) **Ag 112**

Aircraft Runways

Spectrally Balanced Chromatic Approach-Lighting System (BTR) **Ag 59**

Aircraft Servomechanisms

A New Class of Spool Valves with Built-In Dampers (78-DE-6) (A) **S 73**

Aircraft Transmission Systems

The Reliability of Gas Turbine Powered Compressor Units (78-GT-27) (A) **Jl 90**

Aircraft Weapons

Time-Phased Development Methodology—The Key For Reliable Engines In Future Military Aircraft Weapons Systems (78-GT-167) (A) **Ag 116**

Airflow Rate

Heat Transfer Augmentation Using a Corona Discharge Air Jet (78-ENAs-8) (A) **N 111**

Airfoil Design Technology

Application of Nonseries Airfoil Design Technology to Highly Loaded Turbine Exit Guide Vanes (78-GT-108) (A) **Ag 109**

Airframe Design Parameters

Propulsion Cycle and Configuration Commonality - Considerations for Subsonic V/STOL Design (78-GT-88) (A) **Ag 106**

Airplane Program

The F-16 Environmental Control System (78-ENAs-11) (A) **N 112**

Airplanes

System to Avoid Mid-Air Collision (BTR) **Jl 49**

Aiuchi, S. Bending Fatigue Strength of Gear Teeth under Random Loading (77-DET-120) (A) **F 126**

Akai, T. J. Aerodynamic Force and Moment on Oscillating Airfoils in Cascade (78-GT-181) (A) **S 75**

Akbil, E. *(recipient)* Rice-Cullimore Scholarship **N 101**

Akers, D. J. Radial Compressor Development as Dictated by the Requirements of Large Turbochargers (78-GT-187) (A) **S 75**

Akin, L. S. Elections to Fellow Grade **Je 97**; Study of Lubrication Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) (A) **F 124**

Akiyama, T. Shear Fracture Propagation by DCB Testing (77-Pet-32) (A) **Ja 101**

Al Jumally, A. M. Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-67) (A) **Ja 114**

Alaska Pipeline

Alaska Pipeline Honored (NR) **Je 75**

Development of Sumitomo High Toughness Process (SHT) for Arctic Grade Line Pipes (77-Pet-61) (A) **Ja 104**

Albert, K.J. *(author)* How to Pick the Right Small Business Opportunity: The Key to Success in Your Own Business (CB) **Ap 106**

Alcone, J. M. Effective Thermal Diffusivity for a Two-Layer Composite Wall Subject to Periodic Boundary Conditions (77-WA/Sol-10) (A) **My 98**

Alff, R. K. The High Temperature Water Cooled Gas Turbine in Combined Cycle with Integrated Low Btu Gasification (77-JPGC-GT-7) (A) **Mr 93**

Algebraic Motions

Symmetrical Algebraic Motions in the Plane (78-DET-40) (A) **D 92**

Algebraic Trochoids

Algebraic Throchoids—Classification, Transformations, and Certain Properties (78-DET-57) (A) **D 93**

Algorithms

On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/Prod-14) (A) **Je 104**

Control of a Single-Actuator Shaking Table (77-WA/Aut-11) (A) **Je 103**

Development of Gas Turbine Performance Seeking Logic (78-GT-13) (A) **Jl 88**

Machine Loading and Product-Mix Analysis for Group Technology (77-WA/Prod-19) (A) **Je 105**

Allan, J. J. Design of Mechanical Components Using Optimal Control (77-DET-46) (A) **Ja 111**

Allemann, J. C. A Computer Program for the Design of Turbomachinery Blades (78-GT-36) (A) **Jl 91**

Allen, C. R. Acid Digestion and Pressurization Control in Combustible Radwaste Treatment (78-NE-17) (A) **N 115**

Allen, D. T. Core Auxiliary Heat Exchanger Design for HTGR (78-NE-9) (A) **N 114**

Allen, J. S. *(author)* The Steam Engine of Thomas Newcomen (CB) **Mr 100**

Allen, T. J. *(author)* Managing the Flow of Technology (CB) **F 134**

Alloys

Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) (A) **O 99**

Erosion Study in Turbomachinery Affected by Coal Ash Particles (78-GT-136) (A) **Ag 113**

Hot Corrosion of Gas Turbine Components (78-GT-82) (A) **Ag 106**

Shaping Metals-A New Way (BTR) **Ap 49**

Strength of 304L Stainless Steel and Inconel Alloy 601 at Temperatures Above 1000°C (78-PVP-31) (A) **O 104**

Al-Qureshi, H. A. Confined and Unconfined Elastomer Dies for Metal Bending (78-DE-11) (A) **S 72**

Alsaad, M. Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) (A) **F 132**

Alsaad, M. A. Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) (A) **Mr 86**

Altan, T. Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) (A) **Je 107**; A Numerical Method for Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) (A) **Je 107**

Alternate Energy Growths

Energy Supply Through 1990 (ES) **F 26**

Alternative Energy Sources

Ol' Sol in Agricultural Technology (BTR) **S 53**

Altitude Performance

Test Procedures for Establishing the Altitude Performance of Turbofan Engines to Validate Contractual Guarantees (78-GT-42) (A) **Jl 92**

Aluminum

Heat Transfer from Aluminum to HE II—Application to Superconductive Magnetic Energy Storage (78-HT-51) (A) **O 97**

Aluminum Cylinders

Dynamic Fracture of 6061-T6 Aluminum Cylinders (77-WA/APM-14) (A) **Jl 97**

Ambient Conditions

The Effects of Ambient Conditions on Gas Turbine Emissions-Generalized Correction Factors (78-GT-87) (A) **Ag 106**

American Astronautical Society

The Permanent Occupation of Space (NR) **Ja 70**

American Consulting Engineers Council

New Award to Honor Energy Achievements (NR) **Mr 63**

American National Metric Council

Metric Action Around the World (NR) **Mr 64**

American National Standards Institute

Recognizing ANSI's Contributions (NR) **My 66**

American Society of Civil Engineers

ASCE Gives Qualified Support to Minority Engineering and Construction Quotas (NR) **D 56**

American Society of Mechanical Engineers

40th Annual American Power Conference, preview (NR) **Ap 69**; review (NR) **Jl 66**

25th Annual Design Engineering Conference, review **Je 82**

32nd Annual Management Executives Conference, preview (NR) **Je 70**

8th Annual National Congress of Applied Mechanics Conference, preview (NR) **Je 74**

18th Annual New Mexico Section ASME Symposium, review **Jl 77**

Annual Textile Industries Conference, review **D 71**

ASME Aids State Lawmakers (NR) **F 65**

1978 ASME/ASLE Lubrication Conference, preview (NR) **S 60**; review (NR) **D 54**

ASME Convocation Points to New Directions (Ed) **O 19**

ASME Convocation, preview **Jl 75**

ASME/CSME Pressure Vessels and Piping Conference, review **O 80**

ASME Members May Receive **Noise/News** **O 83**

1978-1979 ASME Officers Elected **Ja 88**

ASME Radwaste Course (EN) **S 62**

ASME Student Interns Reflect on Washington, D.C. *(review)* **N 104**

ASME Student Member Chosen 1978 Maid of Cotton (EN) **My 76**

1978 ASME Summer Annual Meeting, review **Ag 85**

ASME Urges EPA to Go Slowly on Drinking Water Filtration (NR) **D 52**

1978 ASME Winter Annual Meeting, preview **Jl 74**

98th ASME Winter Annual Meeting Staff
- Report, review **F 75**
- From the Dais **F 76**
- Special Lectures **F 88**
- Honors and Awards **F 90**
- Applied Mechanics Division Recalls Its Beginnings **F 95**
- At the Sessions **F 98**
- Getting Down to Business **F 108**
- Committees in Charge **F 109**
- Woman's Auxiliary **F 110**

1978 ASME Winter Annual Meeting Theme, preview **O 26**

ASME's 100th Birthday—Centennial Update **D 68**

ASME's Centennial is Approaching **Mr 78**

ASME's Centennial Gift to the Nation **N 94**

ASME's Centennial—Let's Celebrate! (Ed) **My 17**

ASME's New Journal of Energy Resources Technology **O 162**

8th Biennial National Waste Processing Conference, review **Jl 69**

Centennial Update **Ag 84**; **O 78**

The Century Two Convocation—A Report to the Membership **O 20**

Codes and Standards **Ja 118**; **F 138**; **Mr 101**; **Ap 108**; **My 108**; **Je 116**; **Jl 102**; **Ag 120**; **S 79**; **O 109**; **N 128**; **D 99**

Congressional Fellows Find a Home on the Hill **Ap 81**

On Consensus and Policymaking (C) **Je 52**

Convocation Communiques **D 67**

Cooper Union Student Section Meeting (EN) **Mr 67**

Design Engineering Conference, preview (NR) **Ag 71**

1978 Design Engineering Technical Conference, preview **Jl 76**

The Donald P. Eckman Award: A Call for Nominees (NR) **My 70**

Energy Technology Conference and Exhibition, preview **O 117**

On Engineering and Change (Ed) **Ja 17**

Engineering Research Grants and Fellowships (NR) **O 65**

Engineers Public Affairs Forum, review (NR) **Ag 68**

Engineers—Strength in Crisis **F 25**

Fastening and Joining Committee **F 115**

Fifth ASME Freeman Scholar Program in Fluids Engineering (preview) **N 98**

Fifth Freeman Scholar Program, preview **N 98**

Fifth World Congress of the International Federation for Theory of Machines and Mechanisms, preview (NR) **N 76**

First Joint Pressure Vessels and Piping Division and Canadian Society of Mechanical Engineers Conference, preview (NR) **My 69**

1977 Gas Turbine Conference; review **My 40**

1978 Gas Turbine Conference and Show (NR) **Mr 60**

Group Insurance Program (PS) **S 65**

Guidelines to Professional Employment for Engineers and Scientists: Second Edition **Ap 36**

How to Write a Letter to Your Congressman (PS) **My 79**

Industrial Power Conference, review **Ja 83**; **D 69**

13th International Congress on Combustion Engines, preview **N 99**

1978 International Gas Turbine Conference, review **Je 86**

International Inventors Expo '78 (NR) **S 58**

Intersociety Energy Committee Seeking Larger Role (NR) **S 58**

Intersociety Energy Conversion Conference, preview (NR) **Jl 61**

13th Intersociety Energy Conversion Engineering Conference, review (NR) **O 62**

Introspection—Our Hidden Strength (Ed) **Ap 19**

26th Joint Engineering Management Conference, preview (NR) **S 60**

32nd Joint Management Executives Conference, preview (NR) **Ap 69**

1978 Joint Power Generation Conference, preview (NR) **Jl 61**; (NR) **Ag 71**; review **N 91**

Landmarks Program **Ap 83**

Last (And Only) Word On Energy (Ed) **S 19**

Looking at Tomorrow (Ed) **Ag 21**
Materials Handling Division Honors Kentucky Plant *(review)* **N 104**
1978 Mechanisms, Design Technology Transfer, Student Design Conferences, review **N 96**
Microprocessors Featured at Design Engineering Conference and Show **Mr 76**
Modest Goals, Strong Traditions, High Hopes (Ed) **Jl 17**
More Insurance Now Available for Members **D 77**
1978 National Agenda Conference, review **Ag 96**
1978 National Computer Conference, preview (NR) **My 68**
1978 National Material Handling Seminars and Forum, preview (NR) **My 71**
National Nominations—Speak for Your Candidate **My 84**
National Nominations—Your Candidate Proposals are Due **Ap 84**
Needed: Nominees for J. Hall Taylor Medal **Je 91**
New Catalogs Guide **Ag 6**
New Coupon Policy for Tech Papers **N 95**
New Honors Manual Available **O 84**
New Journal of Energy Resources Technology **Je 91**
New ME News Editor **Je 91**
Nominate Your Favorite Inventor (NB) **Je 75**
1978 Nominations for ASME National Officers **Ag 92**
1979 Nominations Requested by the Junior Awards Committee for Pi Tau Sigma Gold Medal, Henry Hess Award, and Alfred Nobel Prize (EN) **Jl 63**
Offshore Technology Conference, preview (NR) **Ap 68**
PE Review Courses Offered Nationally (EN) **Mr 66**
Pension Legislation: How You Can Help **Mr 74**
1978 Plant Engineering and Maintenance Show, review (NR) **Je 71**
1978 Pneumotransport 4 Conference, preview (NR) **My 69**
Presidential Nominee (Er) **S 67**
1978 Public Affairs Forum, Preview (NR) **My 71**
Registration: What ASME Members Think About It **Mr 72**
1978 Reliability and Maintainability Symposium, review (NR) **Ap 66**
Retrospection—Pathway to the Future (Ed) **Je 17**
Safety Division's Four Half-Day Panel Presentations at the WAM (preview) **N 94**
Section and Region News **Mr 79**; **Ap 85**; **My 84**; **Jl 81**; **Ag 97**; **S 69**; **D 76**
Senate Confirms U.S. Metric Board (NR) **My 71**
Sixth ASME Industrial Power Conference, preview **S 68**
Sixth North American Metalworking Research Conference, preview (NR) **Ap 69**
Sixth International Heat Transfer Conference, preview (NR) **My 69**
Solar Industrial Process Heat Conference, preview (NR) **S 60**
St. Paul Hosts Railroad Conference (NR) **Mr 63**
Stockwell to Receive Award (preview) **N 129**
Strategies and Structure for Century Two (CC) **N 88**
Student Section Charter (EN) **Ap 76**
Student Section News **Ag 78**; **D 62**
Student Sections. . . . **N 82**
Tenth Offshore Technology Conference, review (NR) **Jl 58**
1978 Textile Engineering Conference, preview **S 68**; review **Ja 85**
Textile Engineering Conference, review **Ja 85**
Time for Reassessment (WW) **N 84**
Two Bills in Trouble (NB) **N 79**
Unifying the Engineering Profession (NR) **Je 70**
Visiting Professorship in Japan (EN) **My 76**
WAM '78—We Have Met the Future—It Is Ours (Ed) **N 19**
Wanted: Student Design Projects for '78 DET Competition **Jl 76**
1978 Washington Award **My 85**
Waste Processing Conference Stresses Energy Conservation **Mr 75**
Western Design Engineering Show, preview (NR) **Ag 71**
What Technology Transfer?—(Ed) **Mr 17**
1978 Winter Annual Meeting, preview **My 81**; review **Ag 93**
99th Winter Annual Meeting Program **O WAM 1-56**
Winter Annual Meeting Update **S 66**
Woman's Auxiliary **Ja 94**; **Ag 97**
Women's Auxiliary **N 99**; Fourteen ME Students Win Scholarship Awards **N 100**
Woman's Auxiliary
Recent Happenings **Jl 81**; Section Reports **My 85**; At the Summer Annual Meeting **Ag 90**
Yarnell to Speak at WAM (preview) **N 99**

A-Moneim, M. T. Comparison of ICEPEL Predictions with Single Elbow Flexible Piping System Experiment (78-PVP-55) (A) **N 118**

Ammonia Scrubbers
Fume Formation in Ammonia Scrubbers (77-WA/APC-2) (A) **My 101**

Ammunition
Application of a Finite Element Computer Program for Investigating Failure Mechanisms in Military Ammunition (77-WA/DE-20) (A) **Mr 96**

Amos, D. J. Analytical Investigation of Thermal Barrier Coatings for Advanced Power Generation Combustion Turbines (77-WA/Ener-13) (A) **My 95**

Amstrong, C. H. Startup and Initial Operating Experience of Braintree's 85-Megawatt Combined-Cycle Unit (77-JPGC-GT-1) (A) **Mr 92**

Anaerobic Adhesives
Millionths-of-an-inch Accuracy (BTR) **D 47**

Analog Computers
An Experimental Investigation of a Three-Dimensional Turbulent Boundary Layer (77-WA/FE-22) (A) **Ap 96**
Propulsion System Design for the Multi-Mission Patrol Ship Mart 1/1A (78-GT-182) (A) **S 75**

Analog Converter Interface
A Servo Control System Design for Electronic Pattern Control in a Consumer Sewing Machine (78-DE-14) (A) **S 74**

Analog Displays
Control Room of Future: CRT's Supplant Analog Displays (BTR) **F 55**

Analysis Procedure
An Analysis Procedure for the Validation of On-Site Performance Measurements of Gas Turbines (78-GT-152) (A) **Ag 115**

Analytical Design Criteria
Optimizing Turbine Stage Efficiency by Selecting and Matching Reaction, Velocity Ratio, and Clearance Ratio (77-WA/FE-10) (A) **Ap 94**

Analytical Prediction
Analytical Prediction of Three-Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) (A) **Je 104**

Anand, A. K. An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) (A) **Ag 109**

Anchor Bolts
Residual Fatigue Life Determination of Anchor Bolts (78-Mat-8) (A) **O 99**

Anchor Movements
Design and Analysis of a Compact Array of (Class 1) Nuclear Piping for Large Anchor Movements and Seismic Supports (78-PVP-29) (A) **O 104**

Anderson, C. A. A Method for Reliability Analysis of Concrete Reactor Vessels (78-PVP-100) (A) **N 123**

Anderson, D. C. A Graphic Man-Computer Environment for Three-Dimensional Engineering Design (77-DET-117) (A) **F 126**

Anderson, D. G. What Designers Should Know About Laser Welding and Cutting **Je 44**

Anderson, E. E. Optical Design and Performance of an Inverted (78-HT-32) (A) **O 96**

Anderson, G. C. Elections to Fellow Grade **Ag 102**

Anderson, J. C. Analytical Experimental Correlation of a Nonlinear System Subjected to a Dynamic Load (78-PVP-37) (A) **O 105**

Andresen, J. A. High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) (A) **Mr 84**

Andrews, D. K. Fuel Flow Elements for Automotive and Small Industries Gas Turbines (78-GT-17) (A) **Jl 88**

Andrews, J. G. Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) (A) **Ja 108**

Angelery, H. W. Elections to Fellow Grade **Je 97**

Angelino, A. J. Technology Will Tell (C) **Ag 53**

Angsirikul, T. Three-Dimensional Elasticity Solution of a Spherical Dome (77-WA/APM-26) (A) **Jl 98**

Angular Contact Bearings
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) (A) **Mr 86**

Angular Displacements
Flow in a Toroidal Thermosyphon with Angular Displacement of Heated and Cooled Sections (78-HT-44) (A) **O 97**

Anhalt, D. A. Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) (A) **Je 102**

Animal Life Support Transporters
Animal Life Support Transporters for Shuttle/Spacelab (78-ENAs-10) (A) **N 112**

Anisotropic Elasticity
Saint-Venant's Principle and End Effects in Anisotropic Elasticity (77-WA/APM-11) (A) **Jl 97**

Anisotropic Scattering
Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) (A) **O 94**

Ankle Joint
Compliance of the Human Ankle Joint (77-WA/Bio-2) (A) **Mr 97**

Annealing Spring Materials
A Simple Test of the Effectiveness of Stress Relief Annealing Spring Materials (77-WA/DE-21) (A) **Mr 95**

Annular Axial-Radial Diffuser
Flow in an Annular Axial-Radial Diffuser (78-GT-133) (A) **Ag 112**

Annular Cavity
Pump-Induced Acoustic Pressure Distribution in an Annular Cavity Bounded by Rigid Walls (78-PVP-69) (A) **N 120**

Annular Combustors
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) (A) **Ag 106**

Annular Diffuser Performance
Annular Diffuser Performance for an Automotive Gas Turbine (78-GT-147) (A) **Ag 114**

Annular Fins
Heat Transfer Distribution on Annular Fins (78-HT-30) (A) **O 96**

Annular Swirling Flows
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) (A) **Ag 109**

Anode Region
Heat Transfer in the Anode Region of High Intensity Arcs (78-HT-9) (A) **O 93**

Anti-Corrosion Efforts
War on Industrial Corrosion (NB) **AP 73**

Anti-Electrons
Anti-Electrons at the Galactic Center (BTR) **O 48**

Antipas, A. Embedded Elliptical Crack at a Corner (78-PVP-5) (A) **O 102**; A Procedure for Estimating the Stress Intensity Factor of a Flattened Surface Crack at a Nozzle Corner (78-PVP-95) (A) **N 123**

Appl, F. C. A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) (A) **Ja 103**

Application Evaluation
The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) (A) **Ag 113**

Application Process
Half-Bead Weld Repairs for In-Service Applications (78-PVP-10) (A) **O 102**

Applied Mechanics
Asymmetric Branching of Cracks (77-WA/APM-16) (A) **Jl 98**
Bucking of Cylindrical Shells Subjected to Nonuniform Axial Loads (77-WA/APM-12) (A) **Jl 97**
On the Changing Order of Singularity at a Crack Tip (77-WA/APM-8) (A) **Jl 98**
On the Dynamic Expansion of a Circular Hole in an Infinite Plate (77-WA/APM-21) (A) **Je 111**
Dynamic Fracture of 6061-T6 Aluminum Cylinders (77-WA/APM-14) (A) **Jl 97**
Effect of Axial Force on Dynamic Fracture of a Beam or Plate in Pure Bending (77-WA/APM-22) (A) **Jl 98**
The Elastic Energy of Interacting Edge Dislocations in an Infinite Array (77-WA/APM-20) (A) **Jl 98**
The Elastic Field Outside an Ellipsoidal Inclusion (77-WA/APM-29) (A) **Jl 99**
Experimental Investigation of the Angled Elliptic Notch Problem in Tension (77-WA/APM-6) (A) **Je 111**
Experiments on Buckling and Vibration of Superconducting Coils (77-WA/APM-28) (A) **Jl 99**
February Feedback (C) **Ap 45**
On Harmonic Waves in Layered Composites (77-WA/APM-30) (A) **Jl 99**
A High-Order Theory of Plate Deformation—Part 1: Homogenous Plates (77-WA/APM-23) (A) **Jl 98**; Part 2: Laminated Plates (77-WA/APM-24) (A) **Jl 98**
Integrable Generalized Wave Equations Exhibiting a Hypoelastic Compressible Rate-Sensitive Material Flow (77-WA/APM-2) (A) **Je 111**
Linear Stability of Jet Flows (77-WA/APM-10) (A) **Je 111**
The Near-Field Disturbance Created by a Body in a Stratified

Medium With a Free Surface (77-WA/APM-16) (A) **Ji 98**
The Plane Symmetric Contact Problem for Dissimilar Elastic Semi-Infinite Strips of Different Widths (77-WA/APM-13) (A) **Ji 97**
Quasi-Bifurcation in Dynamics of Elastic-Plastic Continua (77-WA/APM-3) (A) **Je 111**
Saint-Venant's Principle and End Effects in Anisotropic Elasticity (77-WA/APM-11) (A) **Ji 97**
A Self-Consistent Approach to Multiple Scattering by Elastic Elipsoidal Inclusions (77-WA/APM-25) (A) **Ji 98**
Stability of Elastically Restrained Timoshenko Cantilevers With Attached Masses Subjected to a Follower Force (77-WA/APM) (A) **Ji 97**
Stable Postbuckling Equilibria of Axially Compressed, Elastic Circular Cylindrical Shells: A Finite-Element Analysis and Comparison With Experiments (77-WA/APM-9) (A) **Ji 97**
Stress Analysis and Stress-Intensity Factors for Finite Geometry Solids Containing Rectangular Surface Cracks (77-WA/APM-5) (A) **Ji 97**
On the Stress Field Due to Initial Strains in a Cuboid Surrounded by an Infinite Elastic Space (77-WA/APM-17) (A) **Ji 98**
On the Tensile and Compressive Strength of Solids Weakened (Strengthened) by an Inhomogeneity (77-WA/APM-4) (A) **Je 110**
The Theory of Static Loads in Bins (77-WA/APM-1) (A) **Je 110**
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) (A) **Ji 98**
Three-Dimensional Elasticity Solution of a Spherical Dome (77-WA/APM-26) (A) **Ji 98**
Transverse Vibrations of Cantilever Beams Having Unequal Breadth and Depth Tapers (77-WA/APM-19) (A) **Ji 98**
Water Waves in a Nonhomogeneous Incompressible Fluid (77-WA/APM-27) (A) **Ji 99**

Approach-Lighting System
Spectrally Balanced Chromatic Approach-Lighting System (BTR) **Ag 59**

Aquaculture
Aquacultural Engineering (CB) **Je 113**

Aquaculture Development
Aquaculture Needs Development (NB) **Mr 65**

Aquatic Environment
Optical Property Measurements for Suspensions of Unicellular Algae (78-HT-14) (A) **O 93**

Aqueous Carbonate Processes
The Atomics International Open Loop and Closed Loop Aqueous Carbonate Processes—A Current Assessment (78-JPGC-Pwr-15) (A) **D 83**

Aquifers
Well-Hole Temperature Distribution in the Presence of Aquifers—A Parametric Study (77-Pet-76) (A) **Ja 106**

Arbitrary Blunt-Nosed Bodies
Laminar, Transitional, and/or Turbulent Three-Dimensional Boundary Layers over Arbitrary Blunt-Nosed Bodies Including Surface Curvature Effects (78-HT-23) (A) **O 94**

Arc Behavior
Critical Steady-State Heat Fluxes Causing Melting or Evaporation of the Anode in a High Intensity Arc (78-HT-10) (A) **O 93**

Arc Shrouding
Long Arc Shrouding—A Reliability Improvement for Untuned Steam Turbine Blading (77-JPGC-Pwr-12) (A) **Mr 89**

Architectural Achievements
The Master Builders: A History of Structural and Environmental Design from Ancient Egypt to the 19th Century (CB) **My 106**

Arctic Gas Recovery
The Internally Insulated Liquid Natural Gas Pipeline for Arctic Gas Recovery (77-WA/HT-17) (A) **Ap 103**

Arctic Wells
Loading Mechanisms in Thawed Permafrost Around Arctic Wells (77-Pet-22) (A) **Ja 100**

Argon Plasma Jet
Decay of the Argon Plasma Jet Surrounded by Ar, He, N_2 and H_2 Gases (78-HT-12) (A) **O 93**

Ariga, I. Effects of Fluid Leakage on Performance of a Centrifugal Compressor (78-GT-143) (A) **Ag 144**; Investigation Concerning Rotating Stall and Surge Phenomena within Centrifugal Compressor Channels (78-GT-9) (A) **Ji 87**; Stabilizing and Destabilizing Effects of Coriolis Force on Two-Dimensional Laminar and Turbulent Boundary Layers (78-GT-1) (A) **Ji 87**

Arledge, R. G. An Iterative Approach to the Solution of Inverse Heat Conduction Problems (77-WA/TM-2) (A) **My 95**

Armature Lathe
Automatic Armature Lathe (IF) **My 65**

Armentrout, E. C. Pressure Instrumentation for Gas Turbine Engines—A Review of Measurement Technology (78-GT-148) (A) **Ag 114**

Armstrong, F. W. Future Prospects for Naval Propulsion Gas Turbines (78-GT-106) (A) **Ag 109**

Arnold, H. S., Jr. Outage Factors—An Aid to Analyzing Electric Generating Unit Reliability (77-JPGC-Pwr-9) (A) **Mr 88**

Arnott, J. J. Jet Partitioned Fluid Amplifiers (77-WA/Flcs-2) (A) **Ap 97**

Aronofsky, J. S. *(author)* Managerial Planning with Linear Programming in Process Industry Operations (CB) **D 96**

Arora, J. S. Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) (A) **Ja 111**

Arpaci, V. S. Finite Amplitude Benard Convection of Purely Radiating Fluids (78-HT-40) (A) **O 96**

Arrays
Design and Analysis of a Compact Array of (Class 1) Nuclear Piping for Large Anchor Movements and Seismic Supports (78-PVP-29) (A) **O 104**
The Elastic Energy of Interacting Edge Dislocations in an Infinite Array (77-WA/APM-20) (A) **Ji 98**
Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) (A) **Ag 110**

Aschner, S. Nonlinear Digital Simulation and Minimum Fuel Control of a Jet Type Gas Turbine Power Generating Unit (78-GT-43) (A) **Ji 92**

Askin, A. B. *(editor)* How Energy Affects the Economy (CB) **S 78**

Asmis, G. J. K. Seismic Design of Gyroscopic Systems (78-PVP-44) (A) **N 117**

Aspect Ratio Optimization
Influence of Geometric Effects on the Aspect Ratio Optimization of Axial Turbine Bladings (78-GT-173) (A) **S 74**

Assembly Configurations
Design Considerations in Mechanical Face Seals for Improved Performance—I (77-WA/Lub-3) (A) **Ji 96**

Assembly Equipment
An Economic Guideline for the Design of Programmable Assembly Machines (77-WA/Aut-2) (A) **Je 102**

Assurance Technology Tolls
R & M Essentials: Proper Methodology, Increased Motivation, Educated Management (NR) **Ap 66**

Asymmetric Heated Plane Jet
Triple-Correlations Closure Models in an Asymmetric Heated Plane-Jet with Negative Production (78-HT-1) (A) **O 92**

Asymmetric Loading
Lateral Stability of Freight Cars With Axles Having Different Wheel Profiles and Asymmetric Loading (78-RT-3) (A) **O 90**

Asymmetric Rotor
The Stability of an Asymmetric Rotor in Damped Supports (78-GT-172) (A) **Ag 117**

Atassi, H. Aerodynamic Force and Moment on Oscillating Airfoils in Cascade (78-GT-181) (A) **S 75**

Atmospheric Changes
Changes in Uranus Atmosphere (BTR) **N 61**

Atmosphere Cloud Physics Laboratory
Atmosphere Cloud Physics Laboratory Thermal Control (78-ENAs-9) (A) **N 111**

Atmospheric Data
Ionosphere Probe for Ice Age Clues (BTR) **O 48**

Atmospheric Pressure
A Helium Cooling System for Large Superconducting A.C. Generators (77-WA/HT-36) (A) **Ap 105**
Three High-Pressure Component Failures (78-Mat-3) (A) **O 98**

Atmospheric Pressure Argon
Heat Transfer in the Anode Region of High Intensity Arcs (78-HT-9) (A) **O 93**

Atmospheric Spray Cooling Systems
Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) (A) **Ap 94**

Atmospheric Surface Layer
Spectral Analogy Between Temperature and Velocity Fluctuations in Various Turbulent Flows (78-HT-2) (A) **O 92**

Atomic Bomb
Little Boy and Fat Man (BTR) **Je 56**

Atomic Deterrent
Nuclear Power as a Deterrent to War (NR) **Mr 64**

Atomic Emission
Spectrometric Analysis of Residual Fuel (78-GT-93) (A) **Ag 107**

Atomic Energy
The Menace of Atomic Energy (CB) **My 105**

Atomic Power
Atomic Power Plant Insurance Act Violates the Constitution **My 80**

Atomic Power Insurance Act
The Atomic Power Insurance Act Violates The Constitution of The United States (77-WA/TS-5) (A) **My 98**

Atomic Power Plants
Atomic Issues (Cont'd.) (C) **Ag 50**
Price-Anderson Atomic Plant Insurance Act: What It Is and What It Is Not **D 66**

Atomizers
Atomization of Crude and Residual Fuel Oils (78-GT-83)

Attia, A. Y. Wear of Gears of Circular-Arc Tooth-Profile (77-DET-59) (A) **Ja 113**

Audet, N. F. Dry-Ice, Liquid-Pulse-Pump, Portable Cooling System (78-ENAs-41) (A) **D 87**

Auld, R. M. Jet Partitioned Fluid Amplifiers (77-WA/Flcs-2) (A) **Ap 97**

Auslander, D. Control of a Single-Actuator Shaking Table (77-WA/Aut-11) (A) **Je 103**

Austenitic Stainless Steel
The Effect of Cycle Shape on Creep-Fatigue Interaction in Austenitic Stainless Steels (78-PVP-89) (A) **N 122**
Frequency Effects in the Elevated Temperature Crack Growth Behavior of Austenitic Stainless Steel—A Design Approach (78-PVP-97) (A) **N 123**
Significance of Delta Ferrite Content to Fatigue Crack Growth Resistance of Austenitic Stainless Steel Weld Deposits (78-PVP-9) (A) **O 102**

Austenitic Welds
Metallurgical Causes of Difficulties with Ultrasonic Inspection of Austenitic Welds (78-PVP-8) (A) **O 102**

Austin, G. J. Prospects for the Gas Turbine in the U.K. Gas Transmission System (78-GT-53) (A) **Ji 94**

Autoclaves
Thoughts on a Code of Practice for Forged High Pressure Vessels of Monobloc Design (78-PVP-62) (A) **N 119**

Auto-Frettaging
Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Ends (77-Pet-42) (A) **Ja 101**

Automated Pipe Welding System
The Merrick "Hot Piper" Automated Pipe Welding System (77-Pet-62) (A) **Ja 104**

Automated Trim Balancing
Turbine Engine Automated Trim Balancing and Vibration Diagnostics (78-GT-129) (A) **Ag 112**

Automatic Blending System
An Automatic Blending and Injection System for Tertiary Oil Recovery by Chemical Flooding (77-Pet-44) (A) **Ja 103**

Automatic Communication
Compact Control Unit (IF) **S 57**

Automatic Control
Application of the Regeneration Spectrum to the Design of Machine Tool Chatter Control Systems (77-WA/Aut-8) (A) **Je 103**
A Comparison of Characteristics of Large Process Control Computer Systems (77-WA/Aut-10) (A) **Je 103**
Control of a Single-Actuator Shaking Table (77-WA/Aut-11) (A) **Je 103**
Correction of Optimal Parameters in Systems with Small Delays (77-WA/Aut-7) (A) **Je 103**
Deterministic Disturbance Rejection in Linear Identification (77-WA/Aut-1) (A) **Je 102**
An Economic Guideline for the Design of Programmable Assembly Machines (77-WA/Aut-2) (A) **Je 102**
Microcomputer Implementation of Direct Digital Control Algorithms for Thermal Process Control Applications (77-WA/Aut-4) (A) **Je 102**
Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) (A) **Je 102**
Power Spectral Density for Constrained Long Wavelength Guideway Irregularities (77-WA/Aut-13) (A) **Je 103**
The Prediction of Passenger Riding Comfort from Acceleration Data (77-WA/Aut-6) (A) **Je 102**
The Regeneration Spectrum—A New Tool for the Stability Analysis of a Class of Linear Time Delayed Systems

(77-WA/Aut-9) (A) **Je 103**
Signature Analysis Methods and Applications for Rotating Machines (77-WA/Aut-5) (A) **Je 102**
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) (A) **Je 103**

Automatic Cylinders
Automatic Cylinder Inspection (IF) **My 64**

Automobiles
Down With Drag (C) **Ap 45**
Free-Wheeling Flywheel (BTR) **Jl 47**
Making of the Motor Car (CB) **Jl 100**
One-Side Galvanized Steel Sheet (IF) **My 64**
The Prediction of Passenger Riding Comfort from Acceleration Data (77-WA/Aut-6) (A) **Je 102**
Stirling Engine Development (BTR) **Jl 49**

Automotive Diesel Engine
Mechanically Induced Noise and Vibration in the Automotive Diesel Engine (77-DET-37) (A) **Ja 110**

Automotive Gas Turbines
Annular Diffuser Performance for an Automotive Gas Turbine (78-GT-147) (A) **Ag 114**
Automotive Gas Turbines (C) **Ag 50**
Design and Development of a Low Emission Combustor for a Car Gas Turbine (78-GT-155) (A) **Ag 115**
Fuel Flow Elements for Automotive and Small Industrial Gas Turbines (78-GT-17) (A) **Jl 88**
Influences on Exhaust Emissions From Automotive Gas Turbines (78-GT-85) (A) **Ag 106**
Problems and Progress in Developing the Automotive Gas Turbine **My 40**
The Radial Turbine as a Ceramic Component (78-GT-178) (A) **S 75**

Automotive Engine Components
"Alternative Engine" Components (BTR) **Jl 50**

Automotive Pollution Control
Automotive Pollution Control Catalysts and Devices (CB) **Je 114**

Automotive Power
New Way to Increase Mileage (NB) **My 72**
Novel Auto Engine (BTR) **AP 54**

Autorack Cars
Ride Quality of Autorack Cars (77-WA/RT-7) (A) **Mr 85**

Autoradiography
Restoring Old Photos via Autoradiography (BTR) **My 54**

Auxiliary Equipment
Forget These! Remember Those! (ES) **Mr 18**

Auxiliary Heating
A Biphysical Model for Evaluating Auxiliary Heating and Cooling Systems (78-ENAs-33) (A) **N 113**

Au-Yang, M. K. Pump-Induced Acoustic Pressure Distribution in an Annular Cavity Bounded by Rigid Walls (78-PVP-69) (A) **N 120**

Availability Limiting Factors
Availability Limiting Factor Identification in Nuclear Powerplants (78-JPGC-NE-12) (A) **D 85**

Avallone, E. A. *(editor)* Marks' Standard Handbook for Mechanical Engineers, Eighth Ed. (CB) **O 108**

Avionics Cooling
F-18 Air Conditioning System (78-ENAs-23) (A) **N 112**

Avitzur, B. Disk and Strip Forging With Side-Surface Foldover: Part 1—Velocity Field and Upper Bound Analysis (77-WA/Prod-36) (A) **Je 107**; Part 2—Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) (A) **Je 107**; Limit Analysis of Hollow Disk Forging Part 1: Upper Bound (77-WA/Prod-2) (A) **My 103**; Part 2: (77-WA/Prod-3) (A) **My 103**

Awards
Alaska Pipeline Honored (NB) **Je 75**
Award for the Breeder Reactor (ES) **O 46**
Best Designs in Energy Conversion Win Awards (NR) **F 66**
A Big Win for Lignite (ES) **Jl 23**
Design Competition (EN) **F 69**
Design Competition Brochure (EN) **My 75**
Enter SCORE's Energy Efficient Vehicles Competition (EN) **Mr 66**
National Engineering Award **S 67**
New Award to Honor Energy Achievements (NR) **Mr 63**
New Honors Manual Available **O 84**
Plastics Design Contest (EN) **Ap 76**
SDRC Receives Award for Educational Film Series (EN) **Jl 63**
1978 Washington Award **My 85**

Awards Nominations
The Donald P. Eckman Award: A Call for Nominees (NR) **My 70**

Axial Angle
A Study on Involute Worm Gearing on Non-Right Axial Angle (77-DET-36) (A) **Ja 110**

Axial Compressor Rotors
Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**

Axial Compressors
An Axial Compressor End-Wall Boundary Layer Calculation Method (78-GT-81) (A) **Ag 105**
Experimental Study of an Axial Compressor Rotor Transfer Function with Nonuniform Inlet Flow (78-GT-69) (A) **Jl 96**
Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) (A) **Jl 88**

Axial Flow
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulent Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) (A) **Ag 90**

Axial Flow Compressors
Growth of a Perturbation in an Axial Flow Compressor (78-GT-30) (A) **Jl 90**
Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-GT-185) (A) **S 75**
A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) (A) **Ag 113**
Propagation of Inlet Flow Distortions Through an Axial Compressor Stage (78-GT-34) (A) **Jl 91**
Reasons for centrifugal Compressor Surging and Surge Control (78-GT-28) (A) **Jl 90**

Axial-Flow Fan Rotors
A Design Point Correlation for Losses due to Part-Span Dampers on Transonic Rotors (78-GT-153) (A) **Ag 115**

Axial-Flow Turbomachine
Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **Jl 87**

Axial Flows
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) (A) **F 123**

Axial Force
Effect of Axial Force on Dynamic Fracture of a Beam or Plate in Pure Bending (77-WA/APM-22) (A) **Jl 98**

Axial Inflow
On Vortex Wind Power (77-WA/FE-20) (A) **Ap 96**

Axial Loads
Buckling of Cylindrical Shells Subjected to Nonuniform Axial Loads (77-WA/APM-12) (A) **Jl 97**
Technology Transfer in the Determination of Torque Characteristics of Instrument Ball Bearings at High Speeds with Radial and Axial Loads (78-DET-69) (A) **D 94**

Axial Plane
The Three-Dimensional Flow and Blade Wake in an Axial Plane Downstream of an Axial Compressor Rotor (78-GT-66) (A) **Jl 95**

Axial Splitting
A Model for Axial Splitting Under Uniaxial Compression (77-Pet-73) (A) **Ja 106**

Axial Stresses
An Analysis of the Propagation of a Brittle Circumferential Crack in a Pipe Subjected to Axial Stresses (78-PVP-101) (A) **N 124**

Axial Turbine Bladings
Influence of Geometric Effects on the Aspect Ratio Optimization of Axial Turbine Bladings (78-GT-173) (A) **S 74**

Axially Compressed Shells
Stable Postbuckling Equilibria of Axially Compressed, Elastic Circular Cylindrical Shells: A Finite-Element Analysis and Comparison With Experiments (77-WA/APM-9) (A) **Jl 97**

Axisymmetric Crack
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) (A) **Jl 98**

Axisymmetric Finite Element Analysis
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) (A) **O 102**

Axisymmetric Sources
Heat Transfer From Axisymmetric Sources at the Surface of a Rotating Disk (78-GT-141) (A) **Ag 141**

Axle Load
Lateral Stability of Freight Cars With Axles Having Different Wheel Profiles and Asymmetric Loading (78-RT-3) (A) **O 90**

Ayers, D. L. Transient Heat and Mass Transfer in Soils (78-HT-31) (A) **O 95**

Aziz, T. S. Decoupling Criteria for Seismic Analysis of Nuclear Power Plant Systems (78-PVP-27) (A) **O 104**; Mass Coupling Effects in the Dynamic Analysis of Nuclear Power Plant Systems (78-PVP-28) (A) **O 104**

B

Baba T. Manufacturing Method of Large-Size Marine High-Pressure Gears (77-DET-35) (A) **Ja 110**

Backer, S. On the Thermal Effects in a Wrap Beam (A Wound-Yarn-Package) (A) **F 132**

Backles, H. E. The Attorney: A Role in Commercial Contracting (77-IPC-1) (A) **F 133**

Badgley, R. H. The Stability of an Asymmetric Rotor in Damped Supports (78-GT-172) (A) **Ag 117**

Badri-Nath, Y. V. Experimental Investigation of Simulated Helicopter Fuel Cell Impact Phenomenon (78-DET-79) (A) **D 95**

Baffle Plate
Vibro-Impact Responses of a Tube with Tube-Baffle Interaction (78-PVP-20) (A) **O 103**

Bagci, C. Determination of the Critical Operating Speeds of Planar Mechanisms by the Finite Element Method Using Planar Actual Line Elements and Lumped Mass Systems (78-DET-37) (A) **D 91**; Elastodynamics of Planar Mechanisms Using Planar Mechanisms Using Planar Actual Finite Line Elements, Lumped Mass Systems Matrix-Exponential Method, and the Method of "Critical-Geometry-Kineto-Elasto-Statics" (CGKES) (78-DET-26) (A) **D 89**; General Forms of Index Ratios and Generation of Variable Index Ratios by Series-Connected Geneva Mechanisms with Single or Multiple Driving Pins (78-DET-28) (A) **D 90**; Synthesis of the Four-Bar Mechanisms for the Generation of Symmetrical "V" Shaped Coupler Curves of Specified Flank Angles for Linkage-Geneva Mechanisms (78-DET-52) (A) **D 91**; Synthesis of the Plane Four-Bar Mechanism for Torque Generation, and Application to a Case Study for the Design of a New Balancing Mechanism for Rotary Top Brush in Power Wax Car Washing Machines (78-DET-71) (A) **D 94**

Bailey, M. P. Rear Surface Noncontact Measurements of Laser Target Temperatures (78-HT-58) (A) **O 98**

Bailey, R. L. The Development of a Large-Diameter Rotating Helium Rig (77-WA/HT-38) (A) **My 99**

Baines, N. C. Computer Aided Design of Mixed Flow Turbines for Turbochargers (78-GT-191) (A) **S 76**

Bair, S. Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) (A) **F 132**

Bajaj, A. K. Linear Stability of Jet Flows (77-WA/APM-10) (A) **Je 111**

Baker, J. E. A Compendium of Line-Symmetric Four-Bars (78-DET-14) (A) **D 89**; Limit Positions of Spatial Linkages via Connectivity Sum Reduction (78-DET-12) (A) **D 88**

Baker, M. S. *(author)* Environmental Impact Statements: A Guide to Preparation and Review (CB) **Jl 101**

Baker, P. D. Recent Developments in Sensors for the Gas Turbine Engine (78-GT-52) (A) **Jl 93**

Baker, P. H. Progress in Railway Mechanical Engineering 1976-1977 Report of Survey Committee Locomotives (77-WA/RT-12) (A) **Mr 85**

Baker, R. C. Through Flow Analysis of Centrifugal Compressors (78-GT-110) (A) **Ag 109**

Bakke, E. Disk Pump Performance in Turbulent Flow (77-WA/FE-26) (A) **Ap 96**

Baladi, J. Y. Transient Heat and Mass Transfer in Soils (78-HT-31) (A) **O 95**

Balancing Mechanisms
Synthesis of the Plane Four-Bar Mechanism for Torque Generation, and Application to a Case Study for the Design of a New Balancing Mechanism for Rotary Top Brush in Power Wax Car Washing Machines (78-DET-71) (A) **D 94**

Balasubramaniam, T. A. Determination of Tissue Perfusion from In Vivo Thermal Conductivity Measurements (77-WA/HT-40) (A) **My 99**

Baliga, B. R. Critical Steady-State Heat Fluxes Causing Melting or Evaporation of the Anode in a High Intensity

Arc (78-HT-10) (A) **O 93**

Balje, O. E. Elections to Fellow Grade **Ja 97**

Ball Bearings

Analysis of Roller/Ball Bearing Vibrations (77-WA/DE-5) (A) **Mr 94**

Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) (A) **Mr 86**

Technology Transfer in the Determination of Torque Characteristics of Instrument Ball Bearings at High Speeds with Radial and Axial Loads (78-DET-69) (A) **D 94**

Ball Drive Mechanism

Planetary Ball Drive Mechanism (PLABALL) (77-DET-170) (A) **F 130**

Ballal, D. R. Weak Extinction Limits of Turbulent Flowing Mixtures (78-GT-144) (A) **Ag 114**

Bally, J. W. Elections to Fellow Grade **O 88**

Bamberger, E. N. Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) (A) **Mr 86**

Bammert, K. Gas Turbine Education and Research Programs in German Universities (78-GT-171) (A) **Ag 117**; Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) (A) **Ji 88**; Nonsteady Operational Behavior of Single-Shaft and Two-Shaft Closed-Cycle Gas Turbines (78-GT-15) (A) **Ji 88**; Vaneless Diffuser Flow with Extremely Distorted Inlet Profile (78-GT-47) (A) **Ji 92**

Band Absorption

Comparison of Analytical Model with Approximate Models for Total Band Absorption and its Derivative (78-HT-15) (A) **O 93**

Banning, R. D. *(recipient)* Sylvia W. Farney Scholarship **N 100**

Bansal, P. N. Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) (A) **Ja 110**; Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces by Offset Circular Whirl Orbits (77-DET-25) (A) **Ja 109**

Barbrow, L. E. Dimensionally Correct Units for Rotation **N 129**

Barclay, B. A. Full Authority Digital Electronic Control—Highlights of Next Generation Propulsion Control Technology (78-GT-165) (A) **Ag 116**

Bardes, C. R. Atomic Issues (Cont'd.) (C) **Ag 52**

Barker, L. M. Geothermal Drill Bit Improvement—Specific Application to the Geysers (77-Pet-67) (A) **Ja 105**

Barker, R. L. A New Hooked Needle Device for Forming Fiber Beards for Length and Strength Measurement (77-Tex-2) (A) **F 131**; An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) (A) **F 131**

Baron, S. Sober Solar Analysis (C) **F 52**

Barrow, G. On a New Model of Oblique (77-WA/Prod-6) (A) **Je 104**

Barrow, W. E. Availability Limiting Factor Identification in Nuclear Powerplants (78-JPGC-NE-12) (A) **D 85**

Barrows, J. F. Experimental Investigation of Unsteady Phenomena in Vaneless Radial Diffusers (78-GT-23) (A) **Ji 89**

Bars

Torsion of Bars of Solid Polygonal and Hollowed Polygonal-Circular Cross Sections (77-WA/DE-27) (A) **Mr 96**

Bartells, P. S. Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**

Barth, E. W. Coupling Selection for Synchronous Motor Drive Systems (77-DET-131) (A) **F 127**

Barthelemy, R. Heat Pipe Mirrors for High Power Lasers (78-HT-60) (A) **O 98**

Bartine, D. E. Use of Thorium in Power Reactors (77-JPGC-NE-24) (A) **Mr 92**

Barton, T. H. The Wind, a Low-Grade Energy Source (77-WA/Ener-4) (A) **My 93**

Base Drag Study

A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) (A) **Ap 95**

Basic Work Measurement

Engineered Work Measurement (CB) **My 106**

Basile, P. S. *(Ed.)* Energy Supply-Demand Integrations to the Year 2000: Global and National Studies (CB) **F 136**

Basin Water Radioactivity

Control of Nuclear Fuel Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**

Bates, J. B. Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) (A) **F 122**

Bathelt, A. G. Experiments on the Role of Natural Convection and Heat Source Arrangement in the Melting of a Solid (78-HT-47) (A) **O 97**

Batra, S. K. On the Thermal Effects in a Wrap Beam (A Wound-Yarn-Package) (77-Tex-3) (A) **F 132**

Battaglia, J. A. Operating Experience and Advanced Technique in Liquid Radwaste Processing (77-JPGC-NE-17) (A) **Mr 91**

Batteries

. . .or Maybe the Electric Car? (ES) **N 20**

Rechargeable, High-Energy Lithium Battery (BTR) **Je 58**

Battery Power

Load-Levelling with Battery Power (BTR) **Ja 59**

Milliamps Go A Long Way (BTR) **Ja 54**

Battery-Powered Vehicles

Electric Vehicles Spark Interest of 10,000 in Philadelphia (NR) **N 74**

Battery Technology

Status of the Electric Car (BTR) **Je 61**

Battery Temperature

Heat Transfer in Lead-Acid Batteries (78-HT-52) (A) **O 97**

Baugh, E. L. Dimensionally Correct Units for Rotation **N 130**

Baumeister, T. *(editor)* Marks' Standard Handbook for Mechanical Engineers, Eighth Ed. (CB) **O 108**

Baumeister, T., III *(editor)* Marks' Standard Handbook for Mechanical Engineers, Eighth Ed. (CB) **O 108**

Baxa, D. E. A Strategy for the Optimum Design of Acoustic Space (77-DET-44) (A) **Ja 111**

Baxendale, B. V. Simulation of Helicopter Powerplant Performance (78-GT-51) (A) **Ji 93**

Baxter, M. L. Lattice Contact in Generated Spiral Bevel Gears (77-DET-63) (A) **Ja 113**

Baxter, W. F. Maintenance and Requalification of a Large LMFBR Component (78-JPGC-NE-1) (A) **D 84**

Bayer, R. G. Review of Wear Problems in the Computer Industry (77-Lub-4) (A) **F 132**

Bayha, E. H. *(author)* Engineered Work Measurement (CB) **My 106**

Bayley, F. J. Performance and Design of Transpiration-Cooled Turbine Blading (78-GT-122) (A) **Ag 111**

Baz, A. Analysis of Pneumatically Driven Double-Acting Reciprocating Pumps (78-DE-19) (A) **O 91**; Dynamically Damped Floating (77-Pet-58) (A) **Ja 104**; A New Class of Spool Valves with Built-In Dampers (78-DE-6) (A) **S 73**

Bazan, J. Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**

Bazinet, G. D. Development of Small Sodium Valves for the Fast Flux Test Facility (77-WA/NE-13) (A) **Je 102**

Beam Approach

Fusion Power (C) **Ja 50**

Beam Builder

Space Machine Demonstrated (BTR) **Ag 54**

Beam Deflection Fluid Amplifiers

Jet Partitioned Fluid Amplifiers (77-WA/Flcs-2) (A) **Ap 97**

Beamlike Dynamic Absorbers

Beamlike Dynamic Vibration Absorbers (77-DET-176) (A) **F 131**

Beams

Dynamic Stability of Fixed-Fixed and Free-Free Timoshenko Beams Resting on an Elastic Foundation (77-DET-134) (A) **F 127**

Effect of Axial Force on Dynamic Fracture of a Beam or Plate in Pure Bending (77-WA/APM-22) (A) **Ji 98**

Effect of Transverse Shearing Deformations on the Coupled Twist-Bending of Curved Beams (78-PVP-102) (A) **N 124**

Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) (A) **Ja 114**

Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) (A) **F 123**

A Photoelastic Evaluation of the Method of Measuring Crack Arrest Toughness with a Tapered DCB Specimen (78-Mat-15) (A) **O 100**

Simplex Solution of Magnel's Method of Prestressed Concrete Beam Design (77-DET-109) (A) **F 125**

A Simplified Method for Calculating the Natural Frequency of Valve Superstructures (78-PVP-4) (A) **O 102**

Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) (A) **Ja 114**

On the Thermal Effects in a Wrap Beam (A Wound-Yarn-Package) (77-Tex-3) (A) **F 132**

Transverse Vibrations of Cantilever Beams Having Unequal Breadth and Depth Tapers (77-WA/APM-10) (A) **Ji 96**

Vibration of Beams Carrying Discrete Dampers and Masses (77-WA/DE-7) (A) **Mr 94**

Vibration of Beams and Plates with Edges Elastically Restrained Against Rotation Carrying Elastically Mounted Masses (77-DET-87) (A) **F 122**

Vibration of Cantilever Sandwich Beams (78-DE-20) (A) **O 92**

Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) (A) **Ja 114**

Vibration of a Heat Exchanger Tube/Support Impact (77-JPGC-NE-5) (A) **Mr 90**

Vibration and Noise Reduction of Beams and Plates by Use of Boundary Damping and Stiffness (77-DET-155) (A) **F 129**

Beard, J. T. Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) (A) **My 97**

Beard, M. G. Recent Experience on Centrifugal Compressors for Small Gas Turbines (78-GT-193) (A) **S 76**

Bearing Clearances

Control of Clearance Effects (77-WA/DE-2) (A) **Mr 93**

Bearing Compartment Seals

Bearing Compartment Seal Systems for Turbomachinery in Direct-Cycle HTGR Power Plants (78-GT-38) (A) **Ji 91**

Bearing Damage

Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) (A) **Ja 115**

Bearing Damper Forces

Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) (A) **Ja 109**

Bearings

An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) (A) **Mr 87**

Critical Speeds, Stability, and Response of a Geared Train of Rotors (77-DET-30) (A) **Ja 110**

Design Charts for Arbitrarily Pivoted, Liquid-Lubrication Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) (A) **Mr 87**

Determining Minimum Film Thickness for Ball Bearings (BTR) **F 56**

The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) (A) **Ja 111**

Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) (A) **Mr 87**

he Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearings (77-Lub-8) (A) **F 133**

F-18 Air Conditioning System (78-ENAs-23) (A) **N 112**

Lubrication of High-Speed Large Bore Tapered-Roller Bearings (78-Lub-13) (A) **F 133**

A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) (A) **Ja 109**

A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) (A) **Mr 86**

Some Experiments on Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) (A) **Ja 109**

The Stability of an Asymmetric Rotor in Damped Supports (78-GT-172) (A) **Ag 117**

Steady-State Unbalance Response of a Three Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) (A) **F 124**

Torsional Vibrations of a Boiler Feed Pump (77-DET-28) (A) **Ja 110**

Transient Response of a Rotor in Damped Bearings (77-DET-21) (A) **Ja 109**

On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) (A) **Mr 86**

Beasley, D. E. *(recipient)* Marjorie Roy Rothermel Scholarship **N 101**

Bealenbough, P. K. Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) (A) **Ji 89**

Beaudry, J. M. An Automatic Blending and Injection System for Tertiary Oil Recovery by Chemical Flooding (77-Pet-44) (A) **Ja 103**

Becker, B. Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-GT-185) (A) **S 75**

Begin, G. The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**

Beguler, C. Triple-Correlations Closure Models in an Asymmetric Heated Plane-Jet with Negative Production (78-HT-1) (A) **O 92**

Behavior Management
Behavior Management: New Science of Managing People at Work (CB) **D 96**

Belkune, R. W. Forced Response of Stiffened Plates (77-DET-150) (A) **F 129**

Bell, A. C. On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/Prod-14) (A) **Je 104**

Bell, R. J. Steam Surface Condenser Operating and Design Considerations (78-JPGC-Pwr-19) (A) **D 84**

Bell System
Blunting the Bite on Ma Bell (BTR) **N 69**

Bellas, G. T. Combustion of Coal-Oil Slurry in a 100-HP Firetube Boiler (77-WA/Fu-5) (A) **My 93**

Belt Drive Materials
Performance of Composite Flat Belt Drive Materials Under Simulated Power Transmission (77-DET-167) (A) **F 130**

Belt Dynamics
Flat Belt Dynamics, Including Viscoelastic Effects (77-DET-166) (A) **F 130**

Belt Pulley
On the Forces Between the Belt and Driving Pulley of a Flat Belt Drive (77-DET-161) (A) **F 130**

Belts
Load Distribution in Timing Belts (77-DET-100) (A) **F 124**

Belytschko, T. Quasi-Eulerian Finite Element Formulation for Fluid-Structure Interaction (78-PVP-60) (A) **N 119**

Benard Convection
Finite Amplitude Benard Convection of Purely Radiating Fluids (78-HT-40) (A) **O 96**

Bending
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) (A) **S 72**
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-46) (A) **Ja 112**
Confined and Unconfined Elastomer Dies for Metal Bending (78-DE-11) (A) **S 72**
Effect of Axial Force on Dynamic Fracture of a Beam or Plate in Pure Bending (77-WA/APM-22) (A) **Ji 98**
The Effect of Thickness Variations on the Behaviour of Smooth Curved Pipes Under External Bending (78-PVP-93) (A) **N 123**
Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) (A) **Je 109**

Bending Fatigue Strength
Bending Fatigue Strength of Gear Teeth under Random Loading (77-DET-120) (A) **F 126**

Bending Moments
Reduction of Allowable Seismic or Weight Piping Span Length Due to Presence of a Concentrated Mass (78-PVP-19) (A) **O 104**

Bending Stress
Advanced Industrial Turbine Gear Calculation Methods (78-GT-174) (A) **S 74**
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part I: Analysis (77-DET-52) (A) **Ja 112**; Part 2: Experimental Investigation (77-DET-53) (A) **Ja 112**

Benedict, C. E. Model Formulation of Complex Mechanisms With Multiple Inputs: Part I—Geometry (77-WA/DE-9) (A) **Mr 94**; Part II—The Dynamic Model (77-WA/DE-10) (A) **Mr 94**

Benedict, R. P. Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) (A) **Ap 100**

Benenson, D. M. Model for Radiation Diagnostics in Turbulent Arcs (78-HT-13) (A) **O 93**

Bennett, J. G. Seismic Response of a Block Type Reactor Core (77-DET-138) (A) **F 128**

Bennett, R. *(author)* A Basis for Sun Design (CB) **Ji 100**

Bennett, R. A. Elections to Fellow Grade **Je 97**

Bennett, W. A. Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) (A) **Ag 109**

Benson, R. S. A Proposed Scheme for Computer Aided Design and Manufacture of Radial Turbine Rotors (78-GT-156) (A) **Ag 115**

Benton, M. Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) (A) **Ja 112**

Benvenuti, E. Aerodynamic Development of Stages for Industrial Centrifugal Compressors. Part 1: Testing Requirements and Equipment—Immediate Experimental Evidence (78-GT-4) (A) **Ji 87**; Part 2: Test Data Analysis, Correlation and Use (78-GT-5) (A) **Ji 87**

Benvenuti, R. *(recipient)* Marjorie Roy Rothermel Scholarship **N 101**

Berger, B. S. Optimum Design of the Homogeneous Plane-Stress Flywheel (77-DET-112) (A) **F 125**

Berger, S. *(author)* Estimating and Project Management for Small Construction Firms (CB) **Ja 117**

Berkol, R. S. Mechanism Case Studies IV (78-DET-19) (A) **D 89**

Berkowitz, L. More on Price-Anderson (C) **S 46**

Berman, I. Communications and the Engineering Environment **Ag 24**

Berman, P. A. Compressed Air Energy Storage Turbomachinery (78-GT-97) (A) **Ag 108**

Bernard-Connolly, M. Low-Cycle Cumulative Damage with Two-Strain Repeated Blocks on a Stainless Steel at High Temperature (78-PVP-88) (A) **N 122**

Bernath, L. Atomic Issues (C) **Ji 44**; (Cont'd.) (C) **Ag 50**

Bernstein, E. The Energy Saver Combined Cycle (78-GT-127) (A) **Ag 112**

Bernstein, M. D. The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) (A) **Mr 91**

Berry, J. T. A Three-Dimensional Finite Element Analysis of the Double Torsion Test (78-PVP-96) (A) **N 123**

Berry R. D. Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) (A) **Ag 110**

Berry, W. E. Animal Life Support Transporters for Shuttle/Spacelab (78-ENAs-10) (A) **N 112**

Bert, C. W. Design of Clamped Composite Material Plates to Maximize Fundamental Frequency (77-DET-88) (A) **F 122**

Bervig, D. Influence of Static and Dynamic Asymmetric Loading Conditions on Silo Design (77-DET-145) (A) **F 128**

Bevel Gear Differentials
Bevel Gear Differentials for Industrial Applications (77-DET-159) (A) **F 129**
Using Bevel Gear Differentials **My 36**

Bevel Gears
Bevel Gears at 203 m/s (40,000 fpm) (77-DET-178) (A) **F 131**
Lattice Contact in Generated Spiral Bevel Gears (77-DET-63) (A) **Ja 113**

Bevel/Helical Gear Units
Optimal Synthesis of Double Reduction Bevel/Helical Gear Units by Nonlinear Programming (77-DET-172) (A) **F 130**

Bhatti, M. S. Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (77-WA/HT-4) (A) **Ap 101**

Bhavikatti, S. S. Optimum Design of Fillets in Flat and Round Tension Bars (77-DET-45) (A) **Ja 112**

Biancheria, A. Application of LIFE Transient Codes to Experiment and Core Design (78-PVP-51) (A) **N 118**

Bibbee, J. N. New Developments in Instrumentation and Control (77-WA/PID-1) (A) **My 101**

Bibbero, R. J. *(author)* Microprocessors in Instruments and Control (CB) **Ap 107**

Bicycles
Bicycles and Tricycles (CB) **My 105**

Bicycling
Bicycling Science (CB) **My 105**

Bielawa, R. L. An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) (A) **Ja 114**

Bienstock, D. Combustion of Coal-Oil Slurry in a 100-HP Firetube Boiler (77-WA/Fu-5) (A) **My 93**

Biggs, M. D. Design of Mechanical Components Using Optimal Control (77-DET-46) (A) **Ja 111**

Bigret, R. Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**

Bin Walls
The Theory of Static Loads in Bins (77-WA/APM-1) (A) **Je 111**

Binding Agents
Experience with Cement Usage as the Binding Agent for Radwaste (78-NE-15) (A) **N 115**

Bioengineering
New Vistas in Bioengineering (C) **O 45**
The New Vistas in Bioengineering **Je 26**

Biography
Robert Julton (CB) **Ap 106**

Biological Investigations
Support System Considerations for STS Biological Investigations (78-ENAs-37) (A) **N 114**

Biological Sciences
Life Sciences Experiments Mission Development Test Program (78-ENAs-36) (A) **N 114**

Biological Specimens
Life Support Systems for Biological Specimens in the Shuttle/Spacelab (78-ENAs-38) (A) **N 114**

Biomass
Bioconversion: Fuels from Biomass (CB) **My 107**

Biomass Fuels
Government Backup for Biomass? (WW) **Ap 78**

Biomechanical Engineering
Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) (A) **Ap 98**
Compliance of the Human Ankle Joint (77-WA/Bio-2) (A) **Mr 97**
Cybernetic Consideration in the Use of Myoelectric Activity for Prosthesis Control (77-WA/Bio-10) (A) **Ap 98**
Determining Muscle Forces in the Leg During Normal Human Gait-An Application and Evaluation of Optimization (77-WA/Bio-9) (A) **Ap 98**
Feasibility of an Active Control Scheme for Above Knee Prostheses (77-Bio-8) (A) **Ap 98**
In Vivo Pressure Activity in the Canine Vas Deferens (77-WA/Bio-7) (A) **Ap 98**
Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) (A) **Ap 98**
Instrument Design for Vitreous Surgery Via the Pars Plana (77-WA/Bio-1) (A) **Mr 97**
Kinematics of Jaw Growth (77-WA/Bio-15) (A) **Ap 99**
Left Ventricular Area Ratios: Comparison of the Circumferential and Longitudinal Directions and Correlation with Left Ventricular Function (77-WA/Bio-11) (A) **Ap 99**
Numerical Linearization of Thermistor Bridge Circuits for in Vivo Medical Research (77-WA/Bio-14) (A) **Ap 99**
Peristaltic Pumping by a Lateral Bending Wave (77-WA/Bio-12) (A) **Ap 99**
A Powered Medical Manipulator for the High Spinal Cord Injured Person (77-WA/Bio-13) (A) **Ap 99**
Real-Time Force Line Visualization: Bioengineering Applications (77-WA/Bio-6) (A) **Mr 97**
Thermal Stress Effects and Surface Cracking Associated With Laser Use of Human Teeth (77-WA/Bio-3) (A) **Mr 97**

Biomechanics
The Kinematic and Force Analysis of Upper Extremity-Orthosis Systems (78-DET-51) (A) **D 93**

Bionics
A Case Study for Bionics: The Space Toggle (78-DET-47) (A) **D 92**

Biphysical Models
A Biphysical Model for Evaluating Auxiliary Heating and Cooling Systems (78-ENAs-33) (A) **N 113**

Birchak, M. J. Phase Change in Liquid Face Seals (77-Lub-12) (A) **Mr 85**

Biron, A. Low-Cycle Cumulative Damage with Two-Strain Repeated Blocks on a Stainless Steel at High Temperature (78-PVP-88) (A) **N 122**

Bistable Amplifiers
Effect of Scaling on Switching Time of Bistable Amplifiers (77-WA/Flcs-5) (A) **Ap 97**

Biswas, J. K. Response Spectrum Method with Residual Terms (78-PVP-79) (A) **N 121**

Bite Guard
Blunting the Bite on Ma Bell (BTR) **N 69**

Bits
Cavijet® Augmented Deep-Hole Drilling Bits (77-Pet-54) (A) **Ja 104**
Geothermal Drill Bit Improvement—Specific Application to the Geysers (77-Pet-67) (A) **Ja 105**
A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) (A) **Ja 103**
Seals for Geothermal Roller Drill Bits (77-Pet-53) (A) **Ja 103**
Stratapax Drill Bit for Gulf Coast Drilling (77-Pet-74) (A) **Ja 106**

Bivariate Time Series Analysis
Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) (A) **Je 106**

Black, J. C. No Love for Lovins (C) **Je 51**

Black, J. T. Theory of Linear Continuous Extrusion Linex

(77-WA/Prod-17) (A) **Je 105**

Bladder Control System
Urinary Sphincter Control System (BTR) **N 65**

Blade Angles
Computer Aided Design of Mixed Flow Turbines for Turbochargers (78-GT-191) (A) **S 76**

Blade Cascades
Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) (A) **Ji 88**

Blade Cooling Systems
A High Temperature Turbine Research Module (77-GT-73) (A) **Ag 105**

Blade Flutter
Synthesis of Blade Flutter Vibratory Patterns Using Stationary Transducers (78-GT-160) (A) **Ag 116**

Blade Profile
A Proposed Scheme for Computer Aided Design and Manufacture of Radial Turbine Rotors (78-GT-156) (A) **Ag 115**

Blade Setting Errors
The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Cascades (77-WA/FE-5) (A) **Ap 93**

Blade Spacing
Propeller Unsteady Thrust Due to Operation in Turbulent Inflows (78-GT-94) (A) **Ag 107**

Blade Surfaces
A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**
An Integrated Quasi-3D Finite Element Calculation Program for Turbomachinery Flows (78-GT-56) (A) **Ji 94**

Blade Tip Clearance Measurement
Turbine Blade Tip Clearance Measurement Utilizing Borescope Photography (78-GT-164) (A) **Ag 116**

Blade Vibrations
Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/Prod-22) (A) **Je 105**

Blade Wake
The Three-Dimensional Flow and Blade Wake in an Axial Plane Downstream of an Axial Compressor Rotor (78-GT-66) (A) **Ji 95**

Bladed-Disk Assemblies
An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) (A) **Ja 114**

Bladed Disks
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) (A) **Ag 109**

Blades
An Axial Compressor End-Wall Boundary Layer Calculation Method (78-GT-81) (A) **Ag 105**
Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) (A) **Ja 111**
A Computer Program for the Design of Turbomachinery Blades (78-GT-36) (A) **Ji 91**
Controlled Reluctance Eddy Current Inspection of Steam Turbine Blades (78-JPGC-Pwr-6) (A) **D 83**
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) (A) **Ji 90**
Development of 25,000 kW Class Two-Shaft Gas Turbine (77-Pet-43) (A) **Ja 102**
Direct Blade Force Measurements in Transonic Cascade Flows (78-GT-45) (A) **Ji 93**
Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) (A) **Ja 114**
Dynamic Response of Packets of Blades by the Finite Element Method (77-DET-70) (A) **Ja 114**
Effect of Slip on Response of a Vibrating Compressor Blade (77-WA/GT-3) (A) **Ap 100**
Experimental Study of an Axial Compressor Rotor Transfer Function with Nonuniform Inlet Flow (78-GT-69) (A) **Ji 96**
An Experimental Study of Diagonal Flow Propeller Pump: Design Performance with Various Types of Blading (77-WA/FE-9) (A) **Ap 94**
Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**
Full Load Tests of the 80-MW Gas Turbine V 93.2 Using a Water Brake (78-GT-68) (A) **Ji 95**
Long Arc Shrouding—A Reliability Improvement for Untuned Steam Turbine Blading (77-JPGC-Pwr-12) 7 (A) **Mr 89**
Operating Experience on Residual Fuel Oil with A W251 Combustion Turbine (78-GT-104) (A) **Ag 108**
Performance and Design of Transpiration-Cooled Turbine Blading (78-GT-122) (A) **Ag 111**
Performance Investigations of Large Capacity Centrifugal Compressors (78-GT-3) (A) **Ji 87**
Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **Ji 87**
Propagation of Inlet Flow Distortions Through an Axial Compressor Stage (78-GT-34) (A) **Ji 91**
Propeller Comeback? (BTR) **Ja 54**
A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbines (78-GT-132) (A) **Ag 112**
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) (A) **Ag 109**
Stresses in Turbine Blades Due to Temperature and Load Variation (78-GT-158) (A) **Ag 115**
A Study of Thermal Fatigue Life Prediction of Air-Cooled Turbine Blades (78-GT-63) (A) **Ji 95**
Study of the Vibrations of Rotating Blades (77-DET-147) (A) **F 129**
Transpiration Air Protected Turbine Blades—An Effective Concept to Achieve High Temperature and Erosion Resistance for Gas Turbines Operating in an Aggressive Environment (78-GT-100) (A) **Ag 108**
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-67) (A) **Ja 114**

Blading
Profile Loss Characteristics and Heat Transfer of Full Coverage Film-Cooled Blading (78-GT-98) (A) **Ag 108**

Blading Design
Influence of Geometric Effects on the Aspect Ratio Optimization of Axial Turbine Bladings (78-GT-173) (A) **S 74**

Blaine, D. G. Braking Duty in North American Freight Train Service and Effects on Brake Equipment, Brake Shoes and Wheels (78-RT-9) (A) **O 91**

Blakely, R. Optimal Design of Multi-Edge Cutting Edge Cutting Tools for BTA Deep-Hole Machining (78-DET-66) (A) **D 94**

Blanding, K. Confidence In Fits **Mr 129**; Confidence in Fits (77-DET-130) (A) **F 127**

Blank, R. W. A Car Rocking Mechanism (77-WA/RT-11) (A) **Mr 85**; Wear Test on Coupler Carrier Wear Plates (77-WA/RT-8) (A) **Mr 84**

Blazewicz, A. J. Chromizing and Turbine Solid Particle Erosion (78-JPGC-Pwr-7) (A) **D 83**

Blended Yarns
The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) (A) **F 132**
Combing of Opening Room Blends of Cotton and Polyester (77-Tex-5) (A) **F 132**

Blending System
An Automatic Blending and Injection System for Tertiary Oil Recovery by Chemical Flooding (77-Pet-44) (A) **Ja 103**
A Continuous Recirculation System for In-Bin Blending of Granular Solids (77-Pet-63) (A) **Ja 105**

Blevins, R. D. Fretting Wear of Heat Exchanger Tubes Part I: Experiments (78-JPGC-NE-8) (A) **D 84**; Part II: Models (78-JPGC-NE-9) (A) **D 84**

Blister Parameters
Helium Blistering in Metals (78-Mat-5) (A) **O 99**

Blooms
Versatile Mobile Platform (IF) **Ja 68**

Bluff Bodies
Thermoelastic Effects in Frictionally Heated Line Contact of Slab Like Bodies (77-Lub-21) (A) **Mr 86**

Blum, E. Slip Ring Eliminator, A Clock-Spring Approach (78-DET-3) (A) **D 87**

Blunt-Nosed Bodies
Laminar, Transitional, and/or Turbulent Three-Dimensional Boundary Layers over Arbitrary Blunt-Nosed Bodies Including Surface Curvature Effects (78-HT-23) (A) **O 94**

Boden, B. G. The Case for a United Engineering Society **Ap 22**

Body Heat Loss
Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) (A) **Ap 98**

Boehm, R. Thermal Stress Effects and Surface Cracking Associated With Laser Use on Human Teeth (77-WA/Bio-3) (A) **Mr 97**; (77-WA/HT-43) (A) **My 100**

Boenig, F. H. Bearing Compartment Seal Systems for Turbomachinery in Direct-Cycle HTGR Power Plants (78-GT-38) (A) **Ji 91**

Bogdanoff, J. L. Dynamic Response of a High-Pressure Steam Pipe in a Fossil Fuel Power Plant (78-PVP-75) (A) **N 120**

Bogden, F. J., Jr. A Constant Strain Element Model Stress Accuracy Prediction Method—ESP (78-PVP-65) (A) **N 119**

Bogy, D. B. The Plane Symmetric Contact Problem for Dissimilar Elastic Semi-Infinite Strips of Different Widths (77-WA/APM-13) (A) **Ji 97**

Bohm, G. J. Modal Superposition Method for Computationally Economical Nonlinear Structural Analysis (78-PVP-70) (A) **N 120**

Boiler Feed Pump
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) (A) **Ja 110**

Boiler Feed Pump Drive
Economic Analysis of Boiler Feed Pump Drive Alternatives (77-JPGC-Pwr-8) (A) **Mr 88**

Boiler Flue Gas
TVA's Cocurrent Scrubber Evaluation (77-WA/APC-8) (A) **My 102**

Boiler Tube Metals
Erosion-Corrosion Effects on Boiler Tube Metals in a Multisolids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**

Boilers
Boiler Sales Booming (ES) **O 46**
Combustion of Coal-Oil Slurry in a 100-HP Firetube Boiler (77-WA/FU-5) (A) **My 93**
Design Considerations for Future Heat Recovery Boilers Aboard Naval Vessels (78-GT-162) (A) **Ag 105**
Designing Fuel Treatment Programs for Gas-to-Oil Converted Central Station Boilers (77-JPGC-Pwr-13) (A) **Mr 89**
ERDA's Coal-Oil Mixture Combustion Program (77-WA/Fu-4) (A) **My 93**
Evaluation of Two Industrial Boilers with Combustion Modifications for Reduced Pollutant Emissions (77-WA/APC-1) (A) **My 101**
Factors Detrimental to Electrostatic Precipitator Performance (77-WA/APC-7) (A) **My 101**
A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) (A) **My 95**
Low NOx Combustion of Paraho Shale Oil in a 45-MW Utility Boiler (77-Wa/Fu-1) (A) **My 92**
A Milestone for Fluidized Bed (ES) **N 21**
Shuttle Orbiter Water Spray Boiler (78-ENAs-17) (A) **N 112**
Two-Phase Flow on the Shell-Side of a Segmentally Baffled Shell-and-Tube Heat Exchanger (77-WA/HT-22) (A) **Ap 103**

Boiling
Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**

Bolted Joint Integrity
Study of Bolted Joint Integrity and Inter-Tube Pass Leakage in U-Tube Heat Exchangers—Part I: Analysis (77-WA/NE-6) (A) **Je 101**; Part II: Applications (77-WA/NE-7) (A) **Je 100**

Bolt-Flange Assembly
Interface Pressure Distribution in a Bolt-Flange Assembly (77-WA/DE-11) (A) **Mr 94**

Bond, C. E. The Foundations of Appropriate Technology: Values, Technology, and Future Reality (77-WA/TS-7) (A) **My 99**

Bond Graphs
Analysis and Simulation of Planar Mechanism Systems Using Bond Graphs (78-DET-2) (A) **D 87**

Bonded Contact
The Plane Symmetric Contact Problem for Dissimilar Elastic Semi-Infinite Strips of Different Widths (77-WA/APM-13) (A) **Ji 97**

Bonded Joints
Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) (A) **Je 110**

Bonded Structures
Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) (A) **Je 109**
Fatigue Crack Propagation in 8 and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) (A) **Je 109**
Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) (A) **Je 109**

Bonding
Gas Pressure Bonding of Stratapax (77-Pet-72) (A) **Ja 105**

Bone Implants
"Bioactive" Materials for Bone, Tooth Implants (BTR) **My 60**
Boom, R. W. Heat Transfer from Aluminum to HE II—Application to Superconductive Magnetic Energy Storage (78-HT-51) (A) **O 97**
Booth, L. E. Power System Economics: On Evaluation of Availability (78-JPGC-Pwr-3) (A) **D 82**
Boraas, S. Down With Drag (C) **Ap 45**
Borescope Photography
Turbine Blade Tip Clearance Measurement Utilizing Borescope Photography (78-GT-164) (A) **Ag 116**
Borgese, D. Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**
Borings
Economic Factors in Mechanical Raise Boring (77-PET-29) (A) **Ja 101**
Borio, A. W. Slagging and Fouling Properties of Coal Ash Deposits as Determined in a Laboratory Test Facility (77-WA/Fu-6) (A) **My 93**
Bornstein, B. Condensate Reheating and Separate Reheating Hotwells for Central Station Main Condensers (78-JPGC-Pwr-14) (A) **D 83**; Selecting an Optimum Rating for Feedpump Turbine Drivers (78-JPGC-Pwr-4) (A) **D 82**
Bornstein, N. S. Hot Corrosion of Gas Turbine Components (78-GT-82) (A) **Ag 106**
Bortz, S. A. Strength Characterization of Various Silicon Base Turbine Materials (77-WA/GT-4) (A) **Ap 100**; Three-Pressure Component Failures (78-Mat-3) (A) **O 98**
Bosch Process
Limitations on Water Production in the Iron-Catalyzed Bosch Process (78-ENAs-4) (A) **N 110**
Bosch, R. J., Jr. Flow Model Test Development of CRBRP Intermediate Heat Exchanger (77-JPGC-NE-10) (A) **Mr 10**
Bosco, C. J. Full Authority Digital Electronic Control—Highlights of Next Generation Propulsion Control Technology (78-GT-165) (A) **Ag 116**
Bosman, C. A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**
Botkin, M. E. Optimal Seismic Design of Plane Frames (77-DET-137) (A) **F 128**
Botman, M. An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) (A) **Ja 110**
Boudiques, S. Training in the Gas Turbine Field in Belgium, in France, in Italy (78-GT-169) (A) **Ag 117**
Boundary Conditions
The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transients (77-WA/HT-14) (A) **Ap 103**
Effect of Stabilizing Thermal Gradients on Natural Convection in Rectangular Enclosures (78-HT-42) (A) **O 97**
Effective Thermal Diffusivity for a Two-Layer Composite Wall Subject to Periodic Boundary Conditions (77-WA/Sol-10) (A) **My 98**
Forced Response of Stiffened Plates (77-DET-150) (A) **F 129**
Forced Vibration of Continuous System with Nonlinear Boundary Conditions (77-DET-80) (A) **Ja 114**
Heat Transfer in Multiply Connected Regions (77-WA/HT-15) (A) **Ap 103**
Performance of Rotary Bed Silica Gel Solid Desiccant Dryers (78-HT-36) (A) **O 95**
Quasi-Bifurcation in Dynamics of Elastic-Plastic Continua (77-WA/APM-3) (A) **Je 111**
Thermal Development of Flow in the Entrance Region of a Channel with Periodic Boundary Conditions (78-HT-27) (A) **O 95**
Boundary Curves
Fast Generation and Manipulation of Curved Surfaces—A Tool for Computer Aided Design (77-DET-106) (A) **F 125**
Boundary Damping
Vibration and Noise Reduction of Beams and Plates by Use of Boundary Damping and Stiffness (77-DET-155) (A) **F 129**
Boundary Layer
Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**
Boundary Layer Analysis
Application of Nonseries Airfoil Design Technology to Highly Loaded Turbine Exit Guide Vanes (78-GT-108) (A) **Ag 109**
Boundary Layer Structure
The Structure of a Boundary Layer on a Rough Wall with Blowing and Heat Transfer (78-HT-3) (A) **O 92**
Boundary Layers
An Analysis of Nonsimilar Boundary Layer Containing Liquid-Droplets Over a Heated Circular Cylinder (78-HT-20) (A) **O 94**
Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) (A) **Ap 100**
An Axial Compressor End-Wall Boundary Layer Calculation Method (78-GT-81) (A) **Ag 105**
Boundary Layer Calculation for Analysis and Design (77-WA/FE-25) (A) **Ap 96**
Calculation of Turbulent Boundary Layers with Tangential Slot Injection (77-WA/HT-29) (A) **Ap 104**
The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (A) **Ap 93**
Effect of Mainstream Variables on Jets Issuing From a Row of Inclined Round Holes (78-GT-138) (A) **Ag 113**
An Experimental Investigation of a Three-Dimensional Turbulent Boundary Layer (77-WA/FE-22) (A) **Ap 96**
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) (A) **Ag 109**
Extended Mixing-Length Hypothesis Application to Transpired or Roughwall Compressible Boundary Layers (78-HT-22) (A) **O 94**
Flow in an Annular Axial-Radial Diffuser (78-GT-133) (A) **Ag 112**
Interacting Turbulent Boundary Layer Over a Wavy Wall (77-WA/HT-28) (A) **Ap 104**
Laminar Shear Layer Due to a Semi-Infinite Thin Flat Plate Oscillating with Zero Mean Velocity (77-WA/FE-16) (A) **Ap 95**
Laminar, Transitional, and/or Turbulent Three-Dimensional Boundary Layers over Arbitrary Blunt-Nosed Bodies Including Surface Curvature Effects (78-HT-23) (A) **O 94**
Longitudinal Vortices in a Horizontal Boundary Layer in Water Including the Effects of the Density Maximum at 4°C (78-HT-25) (A) **O 94**
The Longitudinal Water Boundary Layer Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**
Natural Convection Turbulent Boundary Layers Next to Heated Vertical Surfaces (77-WA/HT-32) (A) **Ap 105**
Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**
Spectral Analogy Between Temperature and Velocity Fluctuations in Various Turbulent Flows (78-HT-2) (A) **O 92**
Stabilizing and Destabilizing Effects of Coriolis Force on Two-Dimensional Laminar and Turbulent Boundary Layers (78-GT-1) (A) **Jl 87**
Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) (A) **O 96**
Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) (A) **Ap 94**
Turbulent Natural Convection in a Horizontal Fluid Layer with Time Dependent Volumetric Energy Sources (78-HT-6) (A) **O 92**
Vaned Diffuser Inlet Flow Conditions for a High Pressure Ratio Centrifugal Compressor (78-GT-50) (A) **Jl 93**
Boundary Lubricant
The Conflicting Roles of Carbon Tetrachloride as a Boundary Lubricant (77-WA/Prod-7) (A) **Je 104**
Boundary Tracking
A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) (A) **Ja 111**
Boundary Values
Analysis of Transient Heat Transfer in Porous Solids with Application Toward Phase Separation Processes (77-WA/HT-13) (A) **Ap 102**
Boundary Waves
Peristaltic Pumping by a Lateral Bending Wave (77-WA/Bio-12) (A) **Ap 99**
Bourdon Tubes
Finite Element Analysis of Bourdon Tubes (79-PVP-67) (A) **N 119**
Bourns, W. T. The Canadian Development Program for Conditioning CANDU Reactor Wastes for Disposal (78-NE-18) (A) **N 116**
Bowen, C. W. The Practical Significance of Designing to Gear Pitting Fatigue Life Criteria (77-DET-122) (A) **F 126**
Bowles, P. On the P.E. Process (C) **S 46**
Bowman, G. H. Support System Considerations for STS Biological Investigations (78-ENAs-37) (A) **N 114**
Bowman, H. F. Determination of Tissue Perfusion from In Vivo Thermal Conductivity Measurements (77-WA/HT-40) (A) **My 99**
Boyd, J. United States Uranium Position (77-JPGC-NE-25) (A) **Mr 92**
Boyd, W. K. Erosion-Corrosion Effects on Boiler Tube Metals in a Multisolids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**
Boyen, J. L. Grid Connected Electrical-Thermal (Cogeneration) Energy System for University of California, Davis, California (78-GT-134) (A) **Ag 112**
Bracken, E. J. Consideration of Local Piping Stiffness in Dynamic Analysis by Piping Systems with Nonlinear Restraints (78-PVP-109) (A) **N 125**
Bradley, W. L. Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/Prod-29) (A) **Je 107**
Brake Cylinders
Automatic Cylinder Inspection (IF) **My 64**
Brake Pipe Leakage
Full Load Tests of the 80-MW Gas Turbine V 93.2 Using a Water Brake (78-GT-68) (A) **Jl 95**
A Network Approach to Brake Pipe Leakage (77-WA/Flcs-10) (A) **Ap 97**
Brakes
Full Load Tests of the 80-MW Gas Turbine V 93.2 Using a Water Brake (78-GT-68) (A) **Jl 95**
A Study in Pneumatic Brake Selection (77-DET-127) (A) **F 126**
Braking Duty
Braking Duty in North American Freight Train Service and Effects on Brake Equipment, Brake Shoes and Wheels (78-RT-9) (A) **O 91**
Branch Connections
Determination of Stress Intensification Factors for the Code Qualification of Integrally Reinforced Branch Connections (78-PVP-99) (A) **N 123**
Branch Defects
Elimination of Branch, Grashof, and Order Defects in Path-Angle Generation and Function Generation Synthesis (78-DET-16) (A) **D 89**
Branched Torsional Systems
On the Torsional Vibration of Branched Systems Using Extended Transfer Matrix Method (77-WA/DE-4) (A) **Mr 93**
Braun, S. Analysis of Roller/Ball Bearing Vibrations (77-WA/DE-5) (A) **Mr 94**
Braun, S. G. Signature Analysis Methods and Applications for Rotating Machines (77-WA/Aut-5) (A) **Je 102**
Bravenac, E. V. How to Write a Practical Quality Assurance Manual **N 33**
Bravin, O. Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**
Brayton Cycle
The Reversed Brayton Cycle Heat Pump—A Natural Open Cycle for HVAC Applications (78-GT-60) (A) **Jl 95**
Breathing Apparatus
Development of Rescue and Escape Breathing Apparatus jbased on a Chlorate Candle Oxygen Source (78-ENAs-1) (A) **N 110**
Hyperbaric Breathing Simulators for Use in the Evaluation of Underwater and Hyperbaric Breathing Apparatus (77-WA/Oce-6) (A) **Ap 93**
A Lightweight, Positive Pressure Rescue Breathing Apparatus (78-ENAs-35) (A) **D 86**
Brebbia, C. A. *(author)* Computational Methods for the Solution of Engineering Problems (CB) **Ag 119**
Breeder Reactors
An Analysis of ERDA's National Energy Plan (77-WA/TS-2) (A) **My 98**
Award for the Breeder Reactor (ES) **O 46**
The Breeder — Now or Never **S 22**; (NR) **Je 66**
Breeder Reactor Held Vital (ES) **My 20**
Breeder Reactors (C) **D 36**
Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**
Maintenance of Clinch River Breeder Reactor Nuclear Island Systems (78-JPGC-NE-4) (A) **D 84**

Maintenance Experience with Sodium Systems at Experimental Breeder Reactor II (EBR-II) (78-JPGC-NE-5) (A) **D 84**
Thermal/Hydraulic Design of Dry-Saturated Steam Evaporators for a Large Fast Breeder Reactor Plant (78-JPGC-NE-7) (A) **D 85**

Breeders
An Alternative to the LMFBR? (ES) **F 27**
United States Uranium Position (77-JPGC-NE-25) (A) **Mr 92**

Breen, D. H. An Analytical Approach for Establishing Case Depth Requirements in Carburized Gears (77-DET-152) (A) **F 129**

Brewer, J. A. A Graphic Man-Computer Environment for Three-Dimensional Engineering (77-DET-117) (A) **F 126**

Brick, R. M. *(author)* Structure and Properties of Engineering Materials (CB) **My 106**

Brickell, M. C. Reliability of Operating Power Plants—A Utility Viewpoint (77-JPGC-Pwr-10) (A) **Mr 89**

Bridge Circuits
Numerical Linearization of Themistor Bridge Circuits for in Vivo Medical Research (77-WA/Bio-14) (A) **Ap 99**

Bridge Cranes
Controlling Bridge Cranes via Electric Clutch (BTR) **My 61**

Britt, E. J. Performance and Cost Evaluation for a Thermionic Topping Power Plant (77-WA/Ener-7) (A) **My 94**

Britton, J. A. Confidence in Fits (C) **My 53**

Brobeck, W. M. Flywheels (C) **My 51**

Brons, F. Optimum Development of Offshore Oilfield Operations (77-Pet-50) (A) **Ja 103**

Bronson, L. E. Propulsion System Design for the Multi-Mission Patrol Ship Mart 1/1A (78-GT-182) (A) **S 75**

Brouollet, A. O. Challenges to Life Support System's Future (78-ENAs-28) (A) **N 113**

Brown, K. W. Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) (A) **Ja 114**

Brown, M. H. An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) (A) **F 131**

Brown, M. T. *(recipient)* Marjorie Roy Rothermal Scholarship **N 101**

Brown, R. J. Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**

Brown, S. J. Thermal Transient Stress Analysis of Cylinder-to-Cylinder Structures by the Finite Plate Method (78-PVP-76) (A) **N 120**

Brown, S. J., Jr. Analytical and Experimental Stress Analysis of a Cylinder-to-Cylinder Structure (77-PVP-11) (A) **Ja 108**

Brown, T. W. Powerplant Integration—the Application of Current Experience to Future Developments (78-GT-113) (A) **Ag 109**

Brownstein, M. Experience with Cement Usage as the Binding Agent for Radwaste (78-NE-15) (A) **N 115**

Brundrett, E. The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (A) **Ap 93**

Buban, E. E. A Lightweight, Positive Pressure Rescue Breathing Apparatus (78-ENAs-35) (A) **D 86**

Bubble Separation
Dynamic Stall of An Airfoil with Leading Edge Bubble Separation Involving Time Dependent Re-Attachment (78-GT-194) (A) **S 76**

Bublievsky, A. F. Investigation of Heat Transfer Between an Electric Arc and a Turbulent Gas Flow in a Channel (78-HT-8) (A) **O 92**

Buchanan, E. The Application of Low Cost Manufacturing Technology to a Turbine Gas Generator (78-GT-202) (A) **S 77**

Buchheim, R. Influences on Exhaust Emissions From Automotive Gas Turbines (78-GT-85) (A) **Ag 106**

Buckius, R. O. Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) (A) **O 94**

Buckley, F. T., Jr. A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) (A) **Ap 95**; A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) (A) **Ap 98**; A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) (A) **Ap 95**

Buckley, L. P. The Canadian Development Program for Conditioning CANDU Reactor Wastes for Disposal (78-NE-18) (A) **N 116**

Buckley, S. Thermosyphon Analysis of a Thermic Diode Solar Heating System (77-WA/Sol-9) (A) **My 98**

Buckling
Buckling of Cylindrical Shells Subjected to Nonuniform Axial Loads (77-WA/APM-12) (A) **Jl 97**
Buckling of Rectangular Cross-Ply Laminated Plates with Nonlinear Stress-Strain Behavior (78-PVP-64) (A) **N 119**
Experiments on Buckling and Vibration of Superconducting Coils (77-WA/APM-28) (A) **Jl 99**

Bugliarello, G. *(author)* Technology, the University and the Community: A Study of the Regional Role of Engineering Colleges (CB) **Ja 116**

Bui-Quoc, T. Low-Cycle Cumulatice Damage with Two-Strain Repeated Blocks on a Stainless Steel at High Temperature (78-PVP-88) (A) **N 122**

Buildings
Design of an Elastic Wind Tunnel Model of a Tall Office Building Using a Finite Element Computer Code (77-WA/DE-6) (A) **Mr 94**

Built-In Dampers
A New Class of Spool Valves with Built-In Dampers (78-DE-6) (A) **S 73**

Bulanowski, E. A. A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) (A) **Ja 109**

Bulk Material Handling
Problems in Control of Particulates in Bulk Material Handling (77-WA/APC-5) (A) **My 102**

Bullock, R. L. Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) (A) **Mr 85**

Buls, R. L. Performance Optimization of Existing Gas Pipeline Systems (77-Pet-85) (A) **Ja 107**

Buoyancy
Buoyancy Induced Convection Flow in Porous Media with Heat Source (78-HT-57) (A) **O 98**

Buoyancy Boundary Layer
Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) (A) **O 96**

Buoyant Inflated Cantilevers
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used In Underwater Applications (77-DET-92) (A) **F 124**

Buoyant Jets
On Prediction and Unified Correlation for Decay of Vertical Buoyant Jets (78-HT-21) (A) **O 94**

Buoyant Region
Structure of a Turbulent Thermal Plume Rising Along an Isothermal Wall (78-HT-24) (A) **O 94**

Buoyant Wakes
Experimental Study of Buoyant Wakes in Horizontal Flows (77-WA/HT-31) (A) **Ap 104**

Bupara, S. S. A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) (A) **Mr 86**

Bureaucratic Inertia
Victim of Bureaucratic Inertia (ES) **O 46**

Burgess, D. S. Maintenance of Clinch River Breeder Reactor Nuclear Island Systems (78-JPGC-NE-4) (A) **D 84**

Buried Pipes
Flexibility Analysis of Buried Pipe (78-PVP-82) (A) **N 121**

Burma, G. Uranium Solution Mining—State of the Art (77-Pet-47) (A) **Ja 103**

Burmeister, L. C. Potential Improvement of Solar Pond Efficiency by Downward Convection (77-WA/HT-6) (A) **Ap 102**

Burn Induced Leakage
A Technique for the Measurement of Burn Induced Leakage of Macromolecules in Living Tissue (77-WA/HT-46) (A) **My 100**

Burner Blocks
Ceramic Fiber as Burner Block (BTR) **Ap 53**

Burners
Low NOx Combustion of Paraho Shale Oil in a 45-MW Utility Boiler (77-WA/Fu-1) (A) **My 92**
Self-Recuperative Burner (IF) **N 72**

Burns, D. J. Ultrasonic Monitoring of Growth of Part-Through Thickness Defects at 290°C (78-NE-12) (A) **N 116**

Burnside, O. H. Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) (A) **Ap 92**

Burst Tests
Study on the Resistivity of Various Types of Steels Against Propagating Shear Fracture by Modified West Jefferson Type Burst Test (78-PVP-71) (A) **N 120**

Burton, A. *(author)* Industrial Archaeological Sites of Britain (CB) **Je 114**

Burton, R. A. Elections to Fellow Grade **My 90**; Thermoplastic Effects in Frictionally Heated Line Contact of Slab Like Bodies (77-Lub-21) (A) **Mr 86**; The Thermoelastic Patch Contact Problem for Large Peclet Number (77-Lub-32) (A) **Mr 87**

Bush, W. H., Jr. Life Sciences Experiments Mission Development Test Program (78-ENAs-36) (A) **N 114**

Bushnell, D. M. Calculation of Turbulent Boundary Layers with Tangential Slot Injection (77-WA/HT-29) (A) **Ap 104**

Business Plans
Formulating and International Contract for Engineering and Technical Services (77-WA/Mgt-4) (A) **My 96**

Business Survey
Business in '78 (NB) **Ja 77**

Bussert, B. W. The Effects of Water Chemistry on the Reliability of Modern Large Steam Turbines (78-JPGC-Pwr-9) (A) **D 83**

Butterworth, D. Developments in the Design of Shell-and-Tube Condensers (77-WA/HT-24) (A) **Ap 104**

Butze, H. F. Wide Range Operation of Advanced Low NO_x Aircraft Gas Turbine Combustors (78-GT-128) (A) **Ag 112**

Buzek, J. R. Design of Pontoons for Floating Roofs (78-PVP-111) (A) **N 124**

Bypass Control Systems
Bypass Control of Closed-Cycle Gas Turbines (78-GT-70) (A) **Jl 96**

Byrne, R. High-Speed Lateral Stability of a Freight Car , Related to Modifications of Conventional Trucks (77-WA/RT-4) (A) **Mr 84**

C

Cabin Cooling
F-18 Air Conditioning System (78-ENAs-23) (A) **N 112**

Cable Shield
Blunting the Bite on Ma Bell (BTR) **N 69**

Cable Systems
Lightwave Communications (BTR) **Ap 57**

Cables
New Power Cable Technique (NB) **Ap 71**

Cackette, T. The Effects of Ambient Conditions on Gas Turbine Emissions-Generalized Correction Factors (78-GT-87) (A) **Ag 105**

Cage Motion
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) (A) **Mr 86**

Cagliostro, D. J. Response of Water-Filled Thin-Walled Pipes to Pressure Pulses: Experiments and Analysis (78-PVP-53) (A) **N 117**

Calcium Oxide
Effect of Carbon Monixide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) (A) **My 102**

Calculation Program
An Integrated Quasi-3D Finite Element Calculation Program for Turbomachinery Flows (78-GT-56) (A) **Jl 94**

Calculators
Distortion—Free Perspectives (BTR) **Ap 60**

Calhoun, M. B. Design Considerations for Surface-Controlled Subsurface Safety Valve Systems (77-Pet-45) (A) **Ja 103**

Callan, P. C. Designing for Reliability the Large Steam Turbine Mark II Control System (77-JPGC-Pwr-4) (A) **Mr 88**

Calvert, W. J. A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) (A) **Ag 113**

Cam Manufacture
A Survey of Cam Manufacture Methods (78-DET-65) (A) **D 94**

Cam Manufacturing
Dynamic Accuracy of Hybrid Profiling Mechanisms in Cam Manufacturing (77-WA/DE-3) (A) **Mr 93**

Cam Mechanism
Cam Mechanism Accuracy (77-WA/DE-19) (A) **Mr 95**

Cam Profiles
Storoidal Motion—A New Class of Cam Profiles (78-DET-20) (A) **D 89**

Campbell, R. M. Socio-Technical Concerns (C) **D 36**; Welcoming the Nuclear Future (C) **N 57**

Canadian Development Program
The Canadian Development Program for Conditioning CANDU Reactor Wastes for Disposal (78-NE-18) (A) **N 116**
Canal Route
The Mediterranean - Dead Sea Project (BTR) **F 58**
Cancer Detection
Cancer Detection in 3-D Mode (BTR) **D 40**
Cancerous Tumors
Topical Heat Waves (BTR) **Je 61**
CANDU Nuclear Stations
Structural Design of Piping for CANDU Nuclear Stations (78-NE-1) (A) **N 114**
CANDU Reactor Wastes
The Canadian Development Program for Conditioning CANDU Reactor Wastes for Disposal (78-NE-18) (A) **N 116**
CANDU Reactors
Seismic Qualification Testing for Shutoff Mechanism for CANDU Reactor (78-PVP-41) (A) **N 117**
Canine Sexual Stimulation
In Vivo Pressure Activity in the Canine Vas Deferens (77-WA/Bio-7) (A) **Ap 98**
Canister Closures
Analysis of a Canister Closure Design by Damage Tolerance Concepts (78-PVP-108) (A) **N 125**
Cantilever Beams
Analytical Experimental Correlation of a Nonlinear System Subjected to a Dynamic Load (78-PVP-37) (A) **O 105**
A Photoelastic Evaluation of the Method of Measuring Crack Arrest Toughness with a Tapered DCB Specimen (78-Mat-15) (A) **O 100**
Transverse Vibrations of Cantilever Beams Having Unequal Breadth and Depth Tapers (77-WA/APM-19) (A) **Ji 98**
Cantilever Cylindrical Shells
Seismic Design Study on Cantilever Cylindrical Shells (77-PVP-14) (A) **Ja 107**
Cantilever Plates
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-46) (A) **Ja 112**
Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) (A) **Ja 114**
Cantilever Sandwich Beams
Vibration of Cantilever Sandwich Beams (78-DE-20) (A) **O 92**
Cantilevered Beams
A Simplified Method for Calculating the Natural Frequency of Valve Superstructures (78-PVP-4) (A) **O 102**
Cantilevered Housing
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) (A) **F 124**
Cantilevered Tube Bundles
Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) (A) **F 123**
Cantilevers
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used In Underwater Applications (77-DET-92) (A) **F 124**
Capillary Flow
An Evaporating Ethanol Meniscus: Part 1—Experimental Studies (78-HT-29) (A) **O 95**
Capital Cost
One Way to Get Gas (ES) **Ja 19**
Capital Investments
Cash Flow and the Analysis of Capital Investments (77-WA/Mgt-3) (A) **My 96**
Capp, S. P. Natural Convection Turbulent Boundary Layers Next to Heated Vertical Surfaces (77-WA/HT-32) (A) **Ap 105**
Capsule Results
Surveillance Capsule Results from the Oconee Class Reactors (78-Mat-22) (A) **O 101**
Capsule Trains
Capsule-Tube Transport System (IF) **Mr 58**
Car Rocking Mechanism
A Car Rocking Mechanism (77-WA/RT-11) (A) **Mr 85**
Car Washing Machines
Synthesis of the Plane Four-Bar Mechanism for Torque Generation, and Application to a Case Study for the Design of a New Balancing Mechanism for Rotary Top Brush in Power Wax Car Washing Machines (78-DET-71) (A) **D 94**
Car Wheels
Braking Duty in North American Freight Train Service and Effects on Brake Equipment, Brake Shoes and Wheels (78-RT-9) (A) **O 91**
Carbide Hob
Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) (A) **F 122**
Carbide Tools
Analytical Prediction of Three-Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) (A) **Je 104**
Optimal Edge Geometry for Maximum Tool Life (77-WA/Prod-43) (A) **Je 108**
Carbides
Increasing the Fracture Resistance of Cemented Carbides During The Drilling of Iron Ores (77-Pet-30) (A) **Ja 101**
Carbon Dioxide
Answering CO_2 Questions (ES) **Ja 19**
The Dependence of the CO_2 Removal Efficiency of LiOH on Humidity and Mesh Size (78-ENAs-5) (A) **N 110**
Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA-/Bio-4) (A) **Ap 98**
Limitations on Water Production in the Iron-Catalyzed Bosch Process (78-ENAs-4) (A) **N 110**
Molten-Carbonate CO_2 Concentrator: Preliminary Experiments (78-ENAs-2) (A) **N 110**
Radiative Heat Transmission from Nonluminous Gases. Computational Study of the Emissivities of Carbon Dioxide (78-HT-16) (A) **O 94**
Carbon Monoxide
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) (A) **My 102**
Measurement of Emissions Variability of a Large Turbofan Aero-Engine (78-GT-75) (A) **Ag 105**
Carbon-Monoxide Lasers
High-Power Laser (BTR) **F 53**
Carbon Steel Forgings
Factors Affecting The Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) (A) **O 98**
Carbon Steels
Tool Life Distributions: Part 4—Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) (A) **Je 108**
Carbon Tetrachloride
The Conflicting Roles of Carbon Tetrachloride as a Boundary Lubricant (77-WA/Prod-7) (A) **Je 104**
Carburized Gears
An Analytical Approach for Establishing Case Depth Requirements in Carburized Gears (77-DET-152) (A) **F 129**
Carburizing Grade Gear Steels
Heat Treatment, Structure, and Properties of Standard and Modified Vasco X-2 Carburizing Grade Gear Steels (77-DET-151) (A) **F 129**
Cardiac Assist Devices
Engineering Hemodynamics: Application to Cardiac Assist Devices (CB) **My 106**
Cardou, A. Flat Belt Dynamics, Including Viscoelastic Effects (77-DET-166) (A) **F 130**
Career Education
Individually Tailored B.S. Degree (EN) **Ji 62**
Career Guidance
Profit from the Mistakes of Others **D 60**
Career Programs
Career Development Programs (EN) **F 68**
Carleton, R. S. The Gas Turbine Waste Heat Recovery System and the U.S. Navy (78-GT-170) (A) **Ag 116**
Carlson, H. *(author)* Spring Designer's Handbook (CB) **Ag 119**; Spring Fatigue Recommended Design Stresses (78-DE-5) (A) **S 73**
Carlson, N. G. A Low-Risk Approach to the High-Temperature Turbine (77-WA/Ener-10) (A) **My 94**
Carnasciali, G. Performance and Cost Evaluation for a Thermionic Topping Power Plant (77-WA/Ener-7) (A) **My 94**
Carpenter, O. R. Elections to Fellow Grade **Ja 97**
Carper, H. J. Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) (A) **Mr 86**
Carr, R. C. The Effects of Smoke Suppressant and Corrosion Inhibiting Fuel Additives on the Particulate and Gaseous Emissions from a Utility Gas Turbine (78-GT-64) (A) **Ji 95**
Carr, R. W. Design of Sodium-Cooled Reactor Systems and Components for Maintainability (78-JPGC-NE-3) (A) **D 84**
Carrier Plates
Wear Test on Coupler Carrier Wear Plates (77-WA/RT-8) (A) **Mr 84**
Carson, N. G. Second-Generation Integrated Coal Gasification/Combined-Cycle Power System (78-GT-14) (A) **Ji 88**
Carson, W. L. Generalized Force Curve Shapes for Structural Synthesis of Joint Torque Systems to Produce a Desired Dynamic Motion Time Response of a 4R-Bar (78-DET-39) (A) **D 92**
Carter, H. R. Thermal-Hydraulic Performance of a Consolidated Nuclear Steam Generator (CNSG) Module (77-JPGC-NE-2) (A) **Mr 89**
Cartwright, K. O. Regrettable Remark? (C) **Ji 41**
Caruthers, G. F. Occupational Exposure Measurement Program at Millstone-2 (77-JPGC-NR-16) (A) **Mr 91**
Caruvana, A. Evaluation of a Water-Cooled Gas Turbine Combined Cycle Plant (78-GT-77) (A) **Ag 105**
Carwile, C. Geothermal Drill Bit Improvement--Specific Application to the Geysers (77-Pet-67) (A) **Ja 105**; Seals for Geothermal Roller Drill Bits (77-Pet-53) (A) **Ja 103**
Cary, A. M., Jr. Calculation of Turbulent Boundary Layers with Tangential Slot Injection (77-WA/HT-29) (A) **Ap 104**
Cascade Flows
Direct Blade Force Measurements in Transonic Cascade Flows (78-GT-45) (A) **Ji 93**
Cascades
Aerodynamic Force and Moment on Oscillating Airfoils in Cascade (78-GT-181) (A) **S 75**
Aeroelastic Stability Analysis of Supersonic Cascades (78-GT-151) (A) **Ag 115**
Cooling Characteristics of Film Cooled Turbine Vane Having Multi-Row of Ejection Holes (78-GT-21) (A) **Ji 89**
The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Cascades (77-WA/FE-5) (A) **Ap 93**
The Effect of a Transversely Injected Stream on the Flow Through Turbine Cascades: Part 3—Influence of Aspect Ratio (78-GT-24) (A) **Ji 89**
Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) (A) **Ji 88**
A Rational Analysis of Periodic Flow Perturbation in Supersonic Two-Dimensional Cascade (78-GT-176) (A) **S 74**
Case Depth Requirements
An Analytical Approach for Establishing Case Depth Requirements in Carburized Gears (77-DET-154) (A) **F 129**
Cashman, J. The Energy Saver Combined Cycle (78-GT-127) (A) **Ag 112**
Casing Geometry
Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-GT-185) (A) **S 75**
Casings
Mechanical Systems for Handling Drill Pipe, Riser, and Casing (77-Pet-77) (A) **Ja 106**
Cash Flow
Cash Flow and the Analysis of Capital Investments (77-WA/Mgt-3) (A) **My 96**
Cason, C. Thermal-Acoustical Phenomena in Pulsed High-Energy Lasers (78-HT-61) (A) **O 98**
Catchpole, A. P. Torsional Vibrations of a Vehicle Drive Line (77-DET-24) (A) **Ja 110**
Catton, I. The Longitudinal Water Boundary Layer Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**; Natural Convection Heat Transfer in Beds of Inductively Heated Particles (77-WA/HT-2) (A) **Ap 101**
Cauley, L. S. Calculation of Peak Yarn Tension During Ring-Spinning (77-Tex-6) (A) **F 132**
Cavitating Inducer
An Experimental Investigation of Cavitating Inducer Instability (77-WA/FE-14) (A) **Ap 95**
Cavitating Water Jet
Cavijet® Augmented Deep-Hole Drilling Bits (77-Pet-54) (A) **Ja 104**
Cavitation
Pressure Transient Analysis in Piping Systems Including the Effects of Plastic Deformation and Cavitation (78-PVP-56) (A) **N 118**
Cavitation Damage
The Effect of Cycle Shape on Creep-Fatigue Interaction in Austenitic Stainless Steels (78-PVP-89) (A) **N 122**
Cavities
Pump-Induced Acoustic Pressure Distribution in an Annuler

Cavity Bounded by Rigid Walls (78-PVP-69) (A) **N 120**

Celestial Mechanics
Moon Skirting Cosmic "Fence" (BTR) **My 59**

Cell Efficiency
Higher-Efficiency Thin-Film Cells (ES) **N 21**

Cell Injury
Kinetics of Thermal Injury of Cell Populations Exposed to Supraphysiological Temperatures (77-WA/HT-44) (A) **My 100**

Cement Usages
Experience with Cement Usage as the Binding Agent for Radwaste (78-NE-15) (A) **N 115**

Cemented Carbides
Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) (A) **Ja 101**

Cementing Conditions
Cementing Through Permafrost Environment (77-Pet-37) (A) **Ja 102**

Centennial Anniversary
ASME's Cetennial is Approaching **Mr 78**

Centennial Celebration
ASME's Centennial—Let's Celebrate! (Ed) **My 17**

Centennial Update
What's New, What's Needed **D 68**

Center-Sill Structures
The Application of Fracture Control Principles to Freight Car Center-Sill Structures (78-RT-7) (A) **O 91**

Central Receiver Technology
Solar One—A 10-MW Solar Thermal Central Receiver Pilot Plant Project (78-JPGC-Pwr-10) (A) **D 82**

Central Station Boilers
Designing Fuel Treatment Programs for Gas-to-Oil Converted Central Station Boilers (77-JPGC-Pwr-13) (A) **Mr 89**

Centrifugal Clutch
The Trailing Shoe Type Centrifugal Clutch—Design Principles and Characteristics (77-DET-126) (A) **F 126**

Centrifugal Compressor Channels
Investigation Concerning Rotating Stall and Surge Phenomena within Centrifugal Compressor Channels (78-GT-9) (A) **Jl 87**

Centrifugal Compressor Impellers
Vaneless Diffuser Flow with Extremely Distorted Inlet Profile (78-GT-47) (A) **Jl 92**

Centrifugal Compressors
Aerodynamic Development of Stages for Industrial Centrifugal Compressors. Part 1: Testing Requirements and Equipment—Immediate Experimental Evidence (78-GT-4) (A) **Jl 87**; Part 2: Test Data Analysis, Correlation and Use (78-GT-5) (A) **Jl 87**

Effects of Fluid Leakage on Performance of a Centrifugal Compressor (78-GT-143) (A) **Ag 114**

Limits of Rotating Stall and Stall in Vaneless Diffuser of Centrifugal Compressors (78-GT-19) (A) **Jl 88**

A New Appraisal of Reynolds Number Effects on Centrifugal Compressor Performance (78-GT-149) (A) **Ag 114**

Performance Investigations of Large Capacity Centrifugal Compressors (78-GT-3) (A) **Jl 87**

Rationalization of Empirical Loss Coefficients and their Application In One Dimensional Performance Prediction Procedures for Centrifugal Compressors (78-GT-177) (A) **S 75**

Recent Experience on Centrifugal Compressors for Small Gas Turbines (78-GT-193) (A) **S 76**

Ten Years' Engineering Development in Gas Turbine Driven Natural Gas Compressor Stations (78-GT-74) (A) **Jl 96**

Through Flow Analysis of Centrifugal Compressors (78-GT-110) (A) **Ag 109**

Vaned Diffuser Inlet Flow Conditions for a High Pressure Ratio Centrifugal Compressor (78-GT-50) (A) **Jl 93**

Vibrations in Very High Pressure Centrifugal Compressors (77-DET-15) (A) **Ja 108**

Centrifugal Impeller
Compressible Flow in a Centrifugal Impeller with Separation: A Two-Dimensional Calculation Method (77-WA/FE-8) (A) **Ap 94**

Experimental Study on Flow in a Supersonic Centrifugal Impeller (78-GT-2) (A) **Jl 87**

Centrifugal Impeller Stalling
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) (A) **Jl 95**

Centrifugal Pump Casings
Mechanical and Thermal Stresses in the Volute of a Pump Casing (78-PVP-45) (A) **N 117**

Centrifugal Separation
A Billion for Uranium Enrichment (ES) **D 14**

Centrifuges
A Combined System of Fuel Washing Involving Both Centrifuges and Electrostatic Separators—A Hybrid (78-GT-130) (A) **Ag 112**

Ceramic Component
The Radial Turbine as a Ceramic Component (78-GT-178) (A) **S 75**

Ceramic Composites
"Bioactive" Materials for Bone, Tooth Implants (BTR) **My 50**

Ceramic Design Methodology
Demonstration of Ceramic Design Methodology for a Ceramic Combustor Liner (78-GT-137) (A) **Ag 113**

Ceramic Fiber
Ceramic Fiber as Burner Block (BTR) **Ap 53**

Ceramic Heat Exchangers
Ceramic Heat Exchangers May Save Petroleum (BTR) **F 59**

A Study of Chemical Reactivity in Ceramic Heat Exchangers (78-GT-118) (A) **Ag 110**

Ceramic Recuperators
Compact Metallic and Ceramic Recuperators for Gas Turbines (78-GT-62) (A) **Jl 95**

Ceramic Tooth Root
Human Implant of Ceramic Tooth Root (BTR) **O 53**

Certification Policy
The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) (A) **Ag 106**

Cesmebasi, E. Finite Amplitude Benard Convection of Purely Radiating Fluids (78-HT-40) (A) **O 96**

Chadwick, W. R. Aeroelastic Stability Analysis of Supersonic Cascades (78-GT-151) (A) **Ag 115**

Chai, D. Column Separation as a Feedback Mechanism in Liquid Oscillators (77-WA/Flcs-4) (A) **Ap 96**

Chai, S. Review of Wear Problems in the Computer Industry (77-Lub-4) (A) **F 132**

Chain Drive
An Experimental Investigation of the Dynamic Behavior of a Roller Chain Drive (77-DET-168) (A) **F 130**

Chakraborty, J. Effect of Number of Gashes in Hob on Accuracy of Generated Tooth Profile of Worm Gear (77-DET-55) **Ja 112**; Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) (A) **Mr 94**

Chalk, R. A. Intersociety Socio-Technical Concerns (C) **My 51**

Chamber Gases
Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) (A) **Ap 98**

Chan, D. P. Fuel Pin Bundle and Hexagonal Duct Mechanical Interaction (78-PVP-48) (A) **N 117**

Chan, K. C. A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**

Chandler, A. L. Turbine Blade Tip Clearance Measurement Utilizing Borescope Photography (78-GT-164) (A) **Ag 116**

Chang, G. C. For the Latest in Energy Storage, Try the Flywheel! **F 38**

Chang, K. Y. Evaluation of Scale-Model for Operability Qualification of Seismic Loading (77-PVP-63) (A) **Ja 106**

Chang, P. Y. Transient Response of a Rotor in Damped Bearings (77-DET-21) (A) **Ja 109**

Chang, R. Y. Dynamic Response Characteristics of Contact Separation in a Preloaded Mechanical Joint (78-DET-48) (A) **D 92**

Chang, Y. W. Comparison of ICEPEL Predictions with Single Elbow Flexible Piping System Experiment (78-PVP-55) (A) **N 118**; A Coupled Eulerian-Lagrangian Method for Analyzing Nonlinear Fluid-Structure Interaction Transient in Reactors (78-PVP-58) (A) **N 119**

Channel Entrance Region
Thermal Development of Flow in the Entrance Region of a Channel with Periodic Boundary Conditions (78-HT-27) (A) **O 95**

Chapel, F. G. Extended Duration Orbiter Life Support System Options (78-ENAs-31) (A) **N 113**

Charalambus, B. The Turbine Fatigue and Creep Evaluator Determination of Cumulative Low-Cycle Fatigue and Creep from Steam Turbine Operational Measurements (77-JPGC-Pwr-3) (A) **Mr 88**

Charlesworth, D. H. The Canadian Development Program for Conditioning CANDU Reactor Wastes for Disposal (78-NE-18) (A) **N 116**

Charnock, H. O. Design of Sodium-Cooled Reactor Systems and Components for Maintainability (78-JPGC-NE-3) (A) **D 84**

Charpy Specimens
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**

Chatter Control System
Application of the Regeneration Spectrum to the Design of Machine Tool Chatter Control Systems (77-WA/Aut-8) (A) **Je 103**

Chatter Controllers
Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) (A) **Je 108**

Chatter Vibrations
Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) (A) **F 129**

Chaturvedi, S. Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) (A) **Ap 94**

Chave, C. T. Atomic Issues (C) **Jl 44**

Chawla, U. S. Closed-End Cylindrical Shell Under Line Load Along a Generator (78-PVP-85) (A) **N 122**

Cheadle, B. A. Computer Assisted Analysis of Cracking in Zr-2.5 Wt% Nb Pressure Tubes (78-PVP-42) (A) **N 117**

Cheatham, J. B., Jr. Effects of Strain-Hardening on Rock/Bit-Tooth Interaction (77-Pet-70) (A) **Ja 105**

Chebychev Approximations
Chebychev Approximations of Spatial Point Sets Using Spheres and Planes (78-DET-4) (A) **D 88**

Chemical Energy
Heat Transfer in Packed Beds at Low Reynolds Number (78-HT-46) (A) **O 96**

Chemical Engineers
Fast-Track II Free for Women Engineers (EN) **N 81**

Chemical Flooding
An Automatic Blending and Injection System for Tertiary Oil Recovery by Chemical Flooding (77-Pet-44) (A) **Ja 103**

Chemical Reactivity
A Study of Chemical Reactivity in Ceramic Heat Exchangers (78-GT-118) (A) **Ag 110**

Chen, C. F. Double-Diffusive Instability in a Density-Stratified Fluid Along a Heated Inclined Wall (78-HT-43) (A) **O 97**

Chen, C. H. On Prediction and Unified Correlation for Decay of Vertical Buoyant Jets (78-HT-21) (A) **O 94**; Space Reduction in EHD Via Fluidic Switching (77-WA/Ener-3) (A) **My 93**

Chen, C. J. On Prediction and Unified Correlation for Decay of Vertical Buoyant Jets (78-HT-21) (A) **O 94**

Chen, F. Y. Dynamic Response Characteristics of Contact Separation in a Preloaded Mechanical Joint (78-DET-48) (A) **D 92**; Storoidal Motion—A New Class of Cam Profiles (78-DET-20) (A) **D 89**

Chen, H. H. A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) (A) **My 95**

Chen, M. M. A Simple Method for Measuring and Monitoring Thermal Properties in Tissues (77-WA/HT-42) (A) **My 100**

Chen, S. S. Dynamic Response of a Circular Cylinder Subjected to Liquid Cross Flow (78-PVP-15) (A) **O 103**; Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (78-DET-96) (A) **F 123**

Chen, T. S. Analysis of Mixed Convection About a Sphere with Uniform Surface Heat Flux (77-WA/HT-1) (A) **Ap 101**

Cheng, H. S. An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) (A) **Mr 86**

Cheng, K. C. Longitudinal Vortices in a Horizontal Boundary Layer in Water Including the Effects of the Density Maximum at 4°C (78-HT-25) (A) **O 94**

Cheng, P. C. The Elastic Field Outside an Ellipsoidal Inclusion (77-WA/APM-29) (A) **Jl 99**

Cheng, R. M. H. Characteristics of a Novel Pneumatic Stepping Motor (77-WA/Flcs-6) (A) **Ap 97**; Computer Simulation of Fluid Control Circuits (77-WA/Flcs-6) (A) **Ap 97**; A Network Approach to Brake Pipe Leakage (77-WA/Flcs-10) (A) **Ap 97**

Cheng, S. Three-Dimensional Elasticity Solution of a Spherical Dome (77-WA/APM-26) (A) **Jl 98**

Chesmejel, S. Aerodynamic Testing of a Low Stimulus, Efficient Exhaust Hood-Industrial Turbines (77-JPGC-Pwr-2) (A) **Mr 88**

Cheung, F. B. Turbulent Natural Convection in a Horizontal Fluid Layer with Time Dependent Volumetric Energy Sources (78-HT-6) (A) **O 92**

Chew, M. S. Optimization of Crank-and-Rocker Linkages with Size and Transmission Constraints (78-DET-6) (A) **D 87**

Chiang, C. C. Structural Design Optimization of Once-Through Type Heat Exchangers (77-JPGC-NE-3) (A) **Mr 89**

Chien, Y. K. Model for Radiation Diagnostics in Turbulent Arcs (78-HT-13) (A) **O 93**

Chigier, N. A. Flame Characteristics of a NASA Contra Swirler Module (78-GT-163) (A) **Ag 116**

Child, D. W. Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) (A) **F 122**

Chinone, H. Research of the XF3-1 Turbofan Engine (78-GT-199) (A) **S 76**

Chiou, J. P. The Effect of Nonuniform Fluid Flow Distribution on Thermal Performance of Crossflow Heat Exchanger (77-WA/HT-3) (A) **Ap 101**

Chip Formation
Analytical Prediction of Three-Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) (A) **My 103**

Chisholm, D. Two-Phase Flow on the Shell-Side of a Segmentally Baffled Shell-and-Tube Heat Exchanger (77-WA/HT-22) (A) **Ap 103**

Chiu, Y. P. Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) (A) **F 132**; On the Stress Field Due to Initial Strains in a Cuboid Surrounded by an Infinite Elastic Space (77-WA/APM-17) (A) **Ji 98**

Chlorate Candles
Development of Rescue and Escape Breathing Apparatus Based on a Chlorate Candle Oxygen Source (78-ENAs-1) (A) **N 110**

Chlorination
ASME Urges EPA to Go Slowly on Drinking Water Filtration (NR) **D 52**

Chloroplast Particles
Spinach Power Harnessed at Ohio State University (EN) **Ji 63**

Cho, S. M. Flow Model Test Development of CRBRP Intermediate Heat Exchanger (77-JPGC-NE-10) (A) **Mr 10**; Intermediate Heat Exchanger Development for the Clinch River Breeder Reactor Plant (77-WA/NE-10) (A) **Je 101**; Thermal/Hydraulic Design of Dry-Saturated Steam Evaporators for a Large Fast Breeder Reactor Plant (78-JPGC-NE-7) (A) **D 85**

Choi, K. W. Heat Transfer in Lead-Acid Batteries (78-HT-52) (A) **O 97**

Choking Flow
A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbines (78-GT-132) (A) **Ag 112**

Chou, Y. F. Dynamic Response of a High-Pressure Steam Pipe in a Fossil Fuel Power Plant (78-PVP-75) (A) **N 120**

Christensen, R. M. A High-Order Theory of Plate Deformation—Part 1: Homogeneous Plates (77-WA/APM-23) (A) **Ji 98**; Part 2: Laminated Plates (77-WA/APM-24) (A) **Ji 98**

Chromizing
Chromizing and Turbine Solid Particle Erosion (78-JPGC-Pwr-7) (A) **D 83**

Chrostowski, J. D. Model Verification of Mixed Dynamic Systems (77-DET-85) (A) **F 123**

Chu, C. L. DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) (A) **Je 101**

Chu, H. Y. A Coupled Eulerian-Lagrangian Method for Analyzing Nonlinear Fluid-Structure Interaction Transient in Reactors (78-PVP-58) (A) **N 119**

Chuang, M. C. Transient Temperature Measurement in Moving Fluids (77-WA/TM-3) (A) **My 96**

Chung, J. S. A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) (A) **Ja 102**

CIMAC Meeting
Next CIMAC Meeting in Vienna **N 99**

Cipolla, R. C. Mechanical Analysis of Steam Generator Tube Denting (78-NE-5) (A) **N 115**; Stress Corrosion Crack Growth and Fracture Predictions for BWR Piping (78-Mat-23) (A) **O 101**

Circuit Breakers
Components to Meet UHV Demands (ES) **N 21**

Circuit Design
Handbook of Simplified Solid-State Circuit Design (CB) **Ag 119**

Circular Arc Profiles
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part I: Analysis (77-DET-52) (A) **Ja 112**

Circular-Arc Tooth-Profile
Wear of Gears of Double Circular-Arc Tooth-Profile (77-DET-59) (A) **Ja 113**

Circular Cracks
Stress Intensity Factor Calculations for Circular Cracks at the Intersections of Pressurized Cylindrical Shells (78-PVP-24) (A) **O 104**

Circular Cylinder
An Analysis of Nonsimilar Boundary Layer Containing Liquid-Droplets Over a Heated Circular Cylinder (78-HT-20) (A) **O 94**

Dynamic Response of a Circular Cylinder Subjected to Liquid Cross Flow (78-PVP-15) (A) **O 103**

Circular Cylinders
Crossflow-Induced Vibration of a Row of Circular Cylinders in Water (77-JPGC-NE-4) (A) **Mr 90**

Circular Cylindrical Shells
Stable Postbuckling Equilibria of Axially Compressed, Elastic Circular Cylindrical Shells: A Finite-Element Analysis and Comparison With Experiments (77-WA/APM-9) (A) **Ji 97**

Circular Holes
On the Dynamic Expansion of a Circular Hole in an Infinite Plate (77-WA/APM-21) (A) **Je 111**

Circular Plates
Wide-Band Band Random Vibration of Circular Plates (77-DET-97) (A) **F 123**

Circular Ring
The Forced Vibration of a Three-Layer Damped Circular Ring (77-DET-154) (A) **F 129**

Circular Whirl Orbits
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) (A) **Ja 109**

Circumferential Cracks
An Analysis of the Propagation of a Brittle Circumferential Crack in a Pipe Subjected to Axial Stresses (78-PVP-101) (A) **N 124**

Circumferential Direction
Left Ventricular Area Ratios: Comparison of the Circumferential and Longitudinal Directions and Correlation with Left Ventricular Function (77-WA/Bio-11) (A) **Ap 99**

Civil Service
Government Jobs: Why They're Attractive, How to Land One (NB) **My 72**

Clad Metal Technology
Explosion Welding **My 28**

Clamped Composite Material Plates
Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-88) (A) **F 122**

Clamped Rectangular Plates
On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) (A) **Mr 93**

Clark, L. G. Correction of Optimal Parameters in Systems with Small Delays (77-WA/Aut-7) (A) **Je 103**

Clark, R. H. Availability Limiting Factor Identification in Nuclear Powerplants (78-JPGC-NE-12) (A) **D 85**

Clearance Effects
Control of Clearance Effects (77-WA/DE-2) (A) **Mr 93**

Clearance Ratio
Optimizing Turbine Stage Efficiency by Selecting and Matching Reaction, Velocity Ratio, and Clearance Ratio (77-WA/FE-10) (A) **Ap 94**

Cleary, M. P. Fracture Discontinuities and Structural Analysis in Resource Recovery Endeavors (77-Pet-32) (A) **Ja 101**

Cleats
Origin and Spacing of Cleats in Coal Beds (77-Pet-24) (A) **Ja 101**

Clinical Temperatures
Experimental Evaluation and Analysis of Thermistor Probes for Recording Clinical In Vivo Temperatures (77-WA/HT-41) (A) **My 100**

"Clo" Value
How Warm is That Coat? (NB) **Ap 72**

Closed-Cycle Gas Turbine Plant
Nuclear Gas Turbine Power Plant Activities in the United States (77-JPGC-GT-5) (A) **Mr 93**

Closed-Cycle Gas Turbines
Alternative Closed-Cycle Gas Turbine System Design Considerations for Ship Propulsion Applications (78-GT-18) (A) **Ji 89**

Bypass Control of Closed-Cycle Gas Turbines (78-GT-70) (A) **Ji 96**

Nonsteady Operational Behavior of Single-Shaft and Two-Shaft Closed-Cycle Gas Turbines (78-GT-15) (A) **Ji 88**

Closed-Cycle Helium Turbine
Optimization Analysis of a CCGT Nuclear Power Plant with Application to the HHT 3000 MWth Commercial Plant (HHT-Project) (78-GT-16) (A) **Ji 88**

Closed Cycle Plants
Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**

Closed-Loop Testing
Development and Closed-Loop Testing of High Efficiency Compressors for Use with a 7000-kW Gas Turbine (78-GT-189) (A) **Ag 117**

Closure Models
Triple-Correlations Closure Models in an Asymmetric Heated Plane-Jet with Negative Production (78-HT-1) (A) **O 92**

Closure Welds
Analysis of a Canister Closure Design by Damage Tolerance Concepts (78-PVP-108) (A) **N 125**

Closures
High Pressure, Quick Acting Closure for Large Diameter, Full Opening, Nuclear and Petro-Chem Pressure Vessels (78-PVP-74) (A) **N 120**

Cloud Microphysics
Atmosphere Cloud Physics Laboratory Thermal Control (78-ENAs-9) (A) **N 111**

Clutch Parameters
A Study in Pneumatic Brake Selection (77-DET-127) (A) **F 126**

Co-generation Power Plants
Steam Turbines for Co-generation Power Plants (78-JPGC-Pwr-16) (A) **D 83**

Coal
Advanced Gasification in Appalachia (ES) **Ag 23**

Clean Coal Replaces Natural Gas in Kansas (BTR) **D 43**

Cleaning Western Coal (ES) **Mr 19**

Coal and its Consequences (BTR) **My 57**

Coal Desulfurization (CB) **My 106**

Coal for Utilities (ES) **Ja 19**

Coal Resources, Characteristics and Ownership in the U.S. (CB) **O 108**

Coal's Not Controlled (ES) **Ja 18**

Combustion of Coal and Waste Materials (CB) **F 136**

Converting Coal to Gas (EN) **F 69**

Design and Calculated Performance and Cost of the ECAS Phase II Open Cycle MHD Power Generation System (77-WA/Ener-5) (A) **My 94**

An Economic Evaluation of Washed Coal for the Four Corners Generating Station (77-WA/CD-2) (A) **My 101**

Energy Goals and Coal (ES) **My 20**

A Hard Look at Liquid Coal (ES) **Ag 23**

A Heat-Recovery System for Process Industries (77-WA/Ener-15) (A) **My 95**

The Impact on Power Plant Design of Sulfur Distribution in Coal (78-JPGC-Pwr-13) (A) **D 83**

"Laundering" Dirty Coal (ES) **D 14**

A Milestone for Fluidized Bed (ES) **N 21**

Moving the Coal (ES) **Ag 23**

New Horizons for Utility Boilers (ES) **Ag 22**

One Way to Get Gas (ES) **Ja 19**

Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal (77-WA/Ener-9) (A) **My 94**

Search for Clean Coal Power (BTR) **D 41**

Underground Gasification of Coal (IF) **N 73**

Coal Ash Deposits
Slagging and Fouling Properties of Coal Ash Deposits as Determined in a Laboratory Test Facility (77-WA/Fu-6) (A) **My 93**

Coal Ash Particles
Erosion Study in Turbomachinery Affected by Coal Ash Particles (78-GT-136) (A) **Ag 113**

Coal Beds
Origin and Spacing of Cleats in Coal Beds (77-Pet-24) (A) **Ja 101**

Coal-Burning Gas Turbines
A New Concept for the Development of Coal Burning Gas Turbines (78-GT-40) (A) **Ji 91**

Coal Cars
A Numerical Study of the Surface Thawing of Coal Cars (77-WA/HT-33) (A) **Ap 105**
Coal Combustor
Erosion-Corrosion Effects on Boiler Tube Metals in a Multi-solids Fluidized-Bed Coal Combuster (77-WA/CD-1) (A) **My 101**
Coal Conversion
Badger's Energy Commitments (ES) **N 20**
A Major Methanol Facility (ES) **Jl 22**
Coal Derivatives
Synthetic Fuels Derived from Coal for Marine Applications (78-GT-20) (A) **Jl 88**
Coal-Derived Fuel System
The Utilization of High-Temperature Gas Turbines in Integrated Coal Derived Fuel Combined Cycles (77-WA/Ener-12) (A) **My 95**
Coal Derived Fuels
Combined Cycles for Operation on Coal Derived Fuels with High-Temperature Combustion Turbines (77-WA/Ener-14) (A) **My 95**
Investigating Combustion Turbine Burner Performance with Coal Derived Liquids Having High Fuel Bound Nitrogen (78-GT-126) (A) **Ag 111**
Technical and Economic Objectives for the Development of Advanced Combined Cycles for Use with Coal-Derived Fuels (78-GT-101) (A) **Ag 108**
Coal Desulfurization
Microbial Desulfurization of Coal (BTR) **D 46**
Coal-Fired Boilers
Factors Detrimental to Electrostatic Precipitator Performance (77-WA/APC-7) (A) **My 101**
Coal Fired Combined Cycle
Commercial Powerplant Design Development for the Coal Fired Combined Cycle (77-JPGC-GT-6) (A) **Mr 93**
Coal-Fired Electric Generating Station
Power's Effect: A Case Study (ES) **F 26**
Coal Fired Plant
Design of a Pressurized Fluid Bed Coal Fired Combined Cycle Electric Power Generation Plant (78-GT-135) (A) **Ag 113**
Coal-Fired Power Plants
Ambient Ground-Level Sulfur Dioxide Concentrations in the Vicinity of a Multiple Stack Power Plant During and After Operation (77-WA/APC-4) (A) **My 102**
Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**
An Optimization Strategy for Control of SO_x from Coal-Fired Power Plants (77-JPGC-Pwr-16) (A) **Mr 89**
Coal-Fired Power Projects
Availability Engineering for Coal-Fired Power Projects (78-PVP-12) (A) **O 102**
Coal-Fueled Power Plant
Conceptual Design of a Coal-Fueled, Fluid Bed Combined Cycle Power Plant (77-WA/Ener-11) (A) **My 95**
Coal Gas
Design of a High Efficiency Combined Cycle Electric Power Plant for Low Btu Coal-Gas (78-GT-125) (A) **Ag 111**
Preliminary Design of Three Combustion Concepts to Burn Low Btu Coal Gas in a High Temperature 1600°C (3000°F) Combustion Turbine (78-GT-71) (A) **Ag 105**
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) (A) **My 102**
Coal Gasification
Another Commitment to Coal Gasification (ES) **S 21**
Stress Response Investigations Related to In-Situ Gasification of Coal (77-Pet-25) (A) **Ja 101**
Studies, Studies, and More Studies (ES) **Ag 23**
Coal Gasification Power System
Second-Generation Integrated Coal Gasification/Combined-Cycle Power System (78-GT-14) (A) **Jl 88**
Coal Gasification Process
A Low-Risk Approach to the High-Temperature Turbine (77-WA/Ener-10) (A) **My 94**
Coal Gasifiers
The Fuel Cell is Alive and Well (ES) **Ag 22**
Coal Mines
U.S. Longwall Mining System (BTR) **Je 59**
Coal-Oil Mixture
Can Coal-Oil Mixtures Make It as Industrial Fuels? **Mr 24**
Coal-Oil Mixture for Economy (BTR) **O 54**
ERDA's Coal-Oil Mixture Combustion Program (77-WA/Fu-4) (A) **My 93**
Coal-Oil Slurry
Combustion of Coal-Oil Slurry in a 100-HP Firetube Boiler (77-WA/Fu-5) (A) **My 93**
Coal Resources
Information on Coal Resources (ES) **Ap 21**
Coal Technologies
Advanced Coal Technologies (ES) **Ap 21**
Coaxial Gas Flow
Decay of the Argon Plasma Jet Surrounded by Ar, He, N_2 and H_2 Gases (78-HT-12) (A) **O 93**
Cobb, J. T. *(introduction)* Professional Engineer's License Guide (CB) **N 126**
Coccio, C. L. An Analysis of ERDA's National Energy Plan (77-WA/TS-2) (A) **My 98**
Code Qualification
Determination of Stress Intensification Factors for the Code Qualification of Integrally Reinforced Branch Connections (78-PVP-99) (A) **N 123**
Coffay, B. Verification of High Reliability Condenser Design (77-JPGC-Pwr-14) (A) **Mr 89**
Cogeneration
Cogeneration: Cushioning the Energy Crunch **Ja 83**
Cogeneration Energy
Grid Connected Electrical-Thermal (Cogeneration) Energy System for University of California, Davis, California (78-GT-134) (A) **Ag 112**
Coggin, R. R. Experimental Evaluation and Analysis of Thermistor Probes for Recording Clinical In Vivo Temperatures (77-WA/HT-41) (A) **My 100**
Cohen, A. Investigating Combustion Turbine Burner Performance with Coal Derived Liquids Having High Fuel Bound Nitrogen (78-GT-126) (A) **Ag 111**
Cohn, A. Development of a Water-Cooled Gas Turbine (78-GT-72) (A) **Jl 96**
Coils
Experiments on Buckling and Vibration of Superconducting Coils (77-WA/APM-28) (A) **Jl 99**
Colborne, W. G. Effect of Scaling on Switching Time of Bistable Amplifiers (77-WA/Flcs-5) (A) **Ap 97**
Cold Heading Process
Cold-Head Miniature Fasteners (BTR) **D 45**
Cold-Rolled Brass
Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/Prod-29) (A) **Je 107**
Cold Rolling
Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) (A) **Je 106**
Cold Water Exposure
Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) (A) **Ap 98**
Cole, R. M. TVA's Cocurrent Scrubber Evaluation (77-WA/APC-8) (A) **My 102**
Cole, R. W. Design of a High Efficiency Combined Cycle Electric Power Plant for Low Btu Coal-Gas (78-GT-125) (A) **Ag 111**
Coiello, M. S. Reducing Costs With Coordinated Advanced Design and Production Techniques (78-DE-9) (A) **S 72**
Coleman, D. W. Testing of FFTF Fuel Handling Equipment (77-WA/NE-9) (A) **Je 101**
Collection Efficiency
Scale Modelling Saves Money (ES) **F 27**
Collection Systems
Tracking and Shadowing Models for Solar Collection Systems (77-WA/Sol-8) (A) **My 97**
Collector Corrosion
Fighting Collector Corrosion (ES) **N 21**
Collector Performance Curves
A "No-Flow" Method for Measuring Solar Collector Performance (77-WA/Sol-5) (A) **My 97**
Collector Temperatures
Design of a Combined Solar Collector/Absorber/Desorber for a Solid-Absorption Refrigerating System (78-HT-35) (A) **O 95**
Collectors
Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) (A) **F 123**
New Stainless Steel Solar Collector (IF) **Je 64**
College Graduates
Engineering Hires Up for College Graduates (EN) **S 61**
Job Prospects Improve for Some College Graduates (EN) **My 74**
College Placement Council
Job-Prospects Still Good (EN) **F 68**
Recruiting Hits New High, Bachelor's Engineers Favored (EN) **N 80**
Collimated Radiation
Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) (A) **O 94**
Colombo, G. V. Microbial Check Valve for Shuttle (78-ENAs-27) (A) **N 112**
Colpin, J. Experimental Study of an Axial Compressor Rotor Transfer Function with Nonuniform Inlet Flow (78-GT-69) (A) **Jl 96**; Propagation of Inlet Flow Distortions Through an Axial Compressor Stage (78-GT-34) (A) **Jl 91**
Colsher, R. W. Fast Generation and Manipulation of Curved Surfaces—A Tool for Computer Aided Design (77-DET-106) (A) **F 125**
Column Design
On Elasto-Plastic Column Design (77-WA/DE-17) (A) **Mr 95**
Column Lateral Response
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) (A) **Ja 113**
Column Separation
Column Separation as a Feedback Mechanism in Liquid Oscillators (77-WA-Flcs-4) (A) **Ap 96**
Colwill, W. H. Experimental Investigation of Unsteady Phenomena in Vaneless Radial Diffusers (78-GT-23) (A) **Jl 89**
Combined Cycle Electric Plant
Design of a Pressurized Fluid Bed Coal Fired Combined Cycle Electric Power Generation Plant (78-GT-135) (A) **Ag 113**
Combined Cycle Plants
The Energy Saver Combined Cycle (78-GT-127) (A) **Ag 112**
Evaluation of a Water-Cooled Gas Turbine Combined Cycle Plant (78-GT-77) (A) **Ag 105**
Integrated Power Plant (ES) **Je 19**
The Utilization of High-Temperature Gas Turbines in Integrated Coal-Derived Fuel Combined Cycles (77-WA/Ener-12) (A) **My 95**
Combined Cycle Power Plant
Conceptual Design of a Coal-Fueled, Fluid Bed Combined Cycle Power Plant (77-WA/Ener-11) (A) **My 95**
Design of a High Efficiency Combined Cycle Electric Power Plant for Low Btu Coal-Gas (78-GT-125) (A) **Ag 111**
Startup and Initial Operating Experience of Braintree's 85-Megawatt Combined-Cycle Unit (77-JPGC-GT-1) (A) **Mr 92**
Combined Cycle Power System
A Low-Risk Approach to the High-Temperature Turbine (77-WA/Ener-10) (A) **My 94**
Second-Generation Integrated Coal Gasification/Combined-Cycle Power System (78-GT-14) (A) **Jl 88**
Technical and Economic Objectives for the Development of Advanced Combined Cycles for Use with Coal-Derived Fuels (78-GT-101) (A) **Ag 108**
Combined-Cycle Systems
The Gas Turbine Waste Heat Recovery System and the U.S. Navy (78-GT-170) (A) **Ag 116**
Combined Cycle Turbine
The High Temperature Water Cooled Gas Turbine in Combined Cycle with Integrated Low Btu Gasification (77-JPGC-GT-7) (A) **Mr 93**
Combined Cycles
Combined Cycles for Operation on Coal Derived Fuels with High-Temperature Combustion Turbines (77-WA/Ener-14) (A) **My 95**
Gas Compression in Combined Cycles with Gasification (78-GT-175) (A) **S 74**
Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal (77-WA/Ener-9) (A) **My 94**
Combined Solar Collector/Absorber/Desorber
Design of a Combined Solar Collector/Absorber/Desorber for a Solid-Absorption Refrigerating System (78-HT-35) (A) **O 95**
Combing Process
Combing of Opening Room Blends of Cotton and Polyester (77-Tex-5) (A) **F 132**
Combustible Radwaste Treatment
Acid Digestion and Pressurization Control in Combustible Radwaste Treatment (78-NE-17) (A) **N 115**
Combustion
Coal-Oil Mixture for Economy (BTR) **O 54**
Combustion of Coal and Waste Materials (CB) **F 136**
Combustion of Coal-Oil Slurry in a 100-HP Firetube Boiler (77-WA/Fu-5) (A) **My 93**
ERDA's Coal-Oil Mixture Combustion Program (77-WA/Fu-4) (A) **My 93**
Investigating Combustion Turbine Burner Performance with Coal Derived Liquids Having High Fuel Bound Nitrogen

(78-GT-126) (A) **Ag 111**
Low NOx Combustion of Paraho Shale Oil in a 45-MW Utility Boiler (77-WA/Fu-1) (A) **My 92**
A New Concept for the Development of Coal Burning Gas Turbines (78-GT-40) (A) **Ji 91**
New Horizons for Utility Boilers (ES) **Ag 22**
Underground Combustion: Shale to Liquid Oil (BTR) **Ap 58**

Combustion Chamber Flows
Computations of Three-Dimensional Gas-Turbine Combustion Chamber Flows (78-GT-142) (A) **Ag 114**

Combustion Engines
Next CIMAC Meeting in Vienna **N 99**
Plasma Igniter for Internal-Combustion Engines (BTR) **D 42**

Combustion Equipment
Cooling Hot Metal Parts in Combustion Equipment (ES) **Ji 22**

Combustion Modifications
Evaluation of Two Industrial Boilers with Combustion Modifications for Reduced Pollutant Emissions (77-WA/APC-1) (A) **My 101**
An Investigation of Turbine Erosion by Combustor Generated Carbon in a Lightweight Marine Gas Turbine (78-GT-96) (A) **Ag 107**

Combustion Turbine Fuels
New Horizons for Methanol (ES) **O 46**

Combustion Turbines
Analytical Investigation of Thermal Barrier Coatings for Advanced Power Generation Combustion Turbines (77-WA/Ener-13) (A) **My 95**
Combined Cycles for Operation on Coal Derived Fuels with High-Temperature Combustion Turbines (77-WA/Ener-14) (A) **My 95**
Combustion Turbines-Economic Choice (77-JPGC-GT-4) (A) **Mr 93**
Operating Experience on Residual Fuel Oil with A W251 Combustion Turbine (78-GT-104) (A) **Ag 108**
On-Site Generation of Hydrogen for Generator Cooling (78-GT-196) (A) **S 76**
Preliminary Design of Three Combustion Concepts to Burn Low Btu Coal Gas in a High Temperature 1600°C (3000°F) Combustion Turbine (78-GT-71) (A) **Ag 105**

Combustor Generated Carbon
An Investigation of Turbine Erosion by Combustor Generated Carbon in a Lightweight Marine Gas Turbine (78-GT-96) (A) **Ag 107**

Combustor Liner
Demonstration of Ceramic Design Methodology for a Ceramic Combustor Liner (78-GT-37) (A) **Ag x13**

Combustors
Design and Development of a Low Emission Combustor for a Car Gas Turbine (78-GT-155) (A) **Ag 115**
Development of a Compact Gas Turbine Combustor to Give Extended Life and Acceptable Exhaust Emissions (78-GT-146) (A) **Ag 114**
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) (A) **Ag 106**
Erosion-Corrosion Effects on Boiler Tube Metals in a Multi-solids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**
Gas Turbine Combustor Cooling by Augmented Backside Convection (78-GT-33) (A) **Ji 90**
Influences on Exhaust Emissions From Automotive Gas Turbines (78-GT-85) (A) **Ag 106**
Wide Range Operation of Advanced Low NO_x Aircraft Gas Turbine Combustors (78-GT-128) (A) **Ag 112**
Comer, J. J. *(recipient)* Sylvia W. Farney Scholarship **N 100**

Commercial Contracting
The Attorney: A Role in Commercial Contracting (77-IPC-1) (A) **F 133**

Commercial Powerplant Design
Commercial Powerplant Design Development for the Coal Fired Combined Cycle (77-JPGC-GT-6) (A) **Mr 93**

Commercialization Program
Program to Establish LMFBR Commercialization (77-JPGC-NE-23) (A) **Mr 92**

Commonality Expansion
Propulsion Cycle and Configuration Commonality Considerations for Subsonic V/STOL Design (78-GT-88) (A) **Ag 106**

Communication
Communication (Ed) **D 13**

Communication Guidelines
How to Write a Letter to Your Congressman (PS) **My 79**

Communication Process
Controlling Innovation: A People-Oriented Process (77-WA/Mgt-1) (A) **My 96**

Communications
Communications and the Engineering Environment **Ag 24**

Communications Aid
Computer-Based Communications Aid for Handicapped (BTR) **D 46**

Compact Capacitor Banks
Smaller Substations (ES) **Ap 20**

Compact Control Unit
Compact Control Unit (IF) **S 57**

Compact Gas Turbine
The Compact Industrial Gas Turbine—Recent Technical Improvements (78-GT-41) (A) **Ji 91**

Compact Gas Turbine Combustor
Development of a Compact Gas Turbine Combustor to Give Extended Life and Acceptable Exhaust Emissions (78-GT-146) (A) **Ag 114**

Compact Tension Specimen
J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) (A) **O 99**

Compitello, F. E. Propulsion Test Facilities Technical Capabilities and International Use (78-GT-184) (A) **S 75**

Complex Loading
Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) (A) **Je 110**

Complex Mechanical Systems
Predicting Acoustical Noise Generation in Complex Mechanical Systems (78-DET-60) (A) **D 93**

Complex Mechanisms
Model Formulation of Complex Mechanisms With Multiple Inputs: Part I—Geometry (77-WA/DE-9) (A) **Mr 94**; Part II—The Dynamic Model (77-WA/DE-10) (A) **Mr 94**

Component Density
A Design Procedure for Printed Wiring Boards (77-DET-110) (A) **F 125**

Component Development
Active Thermal Control Subsystem Development (78-ENAs-6) (A) **N 110**

Component Failures
Three High-Pressure Component Failures (78-Mat-3) (A) **O 98**

Component Modes
Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) (A) **Ja 114**

Component Surface Movement
Noise Radiated from Hydraulic Circuits (78-DE-23) (A) **O 92**

Composite Flat Belt Drive Materials
Performance of Composite Flat Belt Drive Materials Under Simulated Power Transmission (77-DET-167) (A) **F 130**

Composite Materials
The Influence of Material Variability on the Predicted Environmental Behavior of Composite Materials (77-WA/Mat-9) (A) **Je 109**

Composite/Steel Scarf Joint
Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) (A) **Je 110**

Composite Wall
Effective Thermal Diffusivity for a Two-Layer Composite Wall Subject to Periodic Boundary Conditions (77-WA/Sol-10) (A) **My 98**

Compressed Air
Compressed Air Energy Storage Turbomachinery (78-GT-97) (A) **Ag 106**

Compressed Air Energy Storage (CAES)
Analysis of Advanced Compressed Air Energy Storage Concepts (78-HT-53) (A) **O 97**

Compressible Boundary Layers
Extended Mixing-Length Hypothesis Application to Transpired or Roughwall Compressible Boundary Layers (78-HT-22) (A) **O 94**

Compressible Flow
Compressible Flow in a Centrifugal Impeller with Separation: A Two-Dimensional Calculation Method (77-WA/FE-8) (A) **Ap 94**
Integrable Generalized Wave Equations Exhibiting a Hypoelastic Compressible Rate-Sensitive Material Flow (77-WA/APM-2) (A) **Je 111**

Compressible Flow Analysis
Subsonic Compressible Conical Diffuser Flow Analysis (77-WA/FE-2) (A) **Ap 93**

Compression
A Model for Axial Splitting Under Uniaxial Compression (77-Pet-73) (A) **Ja 106**

Compression Seals
Seals for Geothermal Roller Drill Bits (77-Pet-53) (A) **Ja 103**

Compression Systems
Gas Compression in Combined Cycles with Gasification (78-GT-175) (A) **S 74**

Compressive Loads
Stability Design Criteria for Vessels Subjected to Concurrent External Pressure and Longitudinal Compressive Loads (78-PVP-110) (A) **N 125**

Compressive Strength
On the Tensile and Compressive Strength of Solids Weakened (Strengthened) by an Inhomogeneity (77-WA/APM-4) (A) **Je 111**

Compressor Blade
Effect of Slip on Response of a Vibrating Compressor Blade (77-WA/GT-3) (A) **Ap 100**

Compressor Channels
Investigation Concerning Rotating Stall and Surge Phenomena within Centrifugal Compressor Channels (78-GT-9) (A) **Ji 87**

Compressor Performance
Effects of Fluid Leakage on Performance of a Centrifugal Compressor (78-GT-143) (A) **Ag 114**
A New Appraisal of Reynolds Number Effects on Centrifugal Compressor Performance (78-GT-149) (A) **Ag 114**
A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) (A) **Ag 113**

Compressor Rotor
The Three-Dimensional Flow and Blade Wake in an Axial Plane Downstream of an Axial Compressor Rotor (78-GT-66) (A) **Ji 95**

Compressor Selection
Selection of Compressors and Driving Equipment (78-GT-168) (A) **Ag 116**

Compressor Shaft Systems
Torsional Response of Compressor Shaft Systems During Synchronous Motor Startup. Part I—Analytical Model (77-Pet-49) (A) **Ja 103**; Part II—Field Measurement Techniques (77-Pet-60) (A) **Ja 104**; Part III—Abnormal Motor Conditions (77-Pet-56) (A) **Ja 104**

Compressor Stator
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) (A) **Ag 109**

Compressor Surging
Reasons for centrifugal Compressor Surging and Surge Control (78-GT-28) (A) **Ji 90**

Compressor Technology
Compressors at Purdue (NR) **Je 75**

Compressors
Aerodynamic Development of Stages for Industrial Centrifugal Compressors. Part 1: Testing Requirements and Equipment—Immediate Experimental Evidence (78-GT-4) (A) **Ji 87**; Part 2: Test Data Analysis, Correlation and Use (78-GT-5) (A) **Ji 87**
Analysis of the Flow Field in a Radial Compressor (78-GT-7) (A) **Ji 87**
An Axial Compressor End-Wall Boundary Layer Calculation Method (78-GT-81) (A) **Ag 105**
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) (A) **S 74**
Coupling Selection for Synchronous Motor Drive System (77-DET-131) (A) **F 127**
Development and Closed-Loop Testing of High Efficiency Compressors for Use with a 7000-kW Gas Turbine (78-GT-189) (A) **Ag 117**
Experimental Investigation of Unsteady Phenomena in Vaneless Radial Diffusers (78-GT-23) (A) **Ji 89**
Experimental Study of an Axial Compressor Rotor Transfer Function with Nonuniform Inlet Flow (78-GT-69) (A) **Ji 96**
Experimental Study on Flow in a Supersonic Centrifugal Impeller (78-GT-2) (A) **Ji 87**
First-Order Pump Surge Behavior (77-WA/FE-12) (A) **Ap 95**
Gas Motor-Heat Pump (IF) **S 56**
Growth of a Perturbation in an Axial Flow Compressor (78-GT-30) (A) **Ji 90**
Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-GT-185) (A) **S 75**
Investigations on Impulse Blade Cascades with Medium

Deflection (78-GT-12) (A) **Ji 88**
Limits of Rotating Stall and Stall in Vaneless Diffuser of Centrifugal Compressors (78-GT-19) (A) **Ji 88**
Performance Investigations of Large Capacity Centrifugal Compressors (78-GT-3) (A) **Ji 87**
Propagation of Inlet Flow Distortions Through an Axial Compressor Stage (78-GT-34) (A) **Ji 91**
Radial Compressor Development as Dictated by the Requirements of Large Turbochargers (78-GT-187) (A) **S 75**
Recent Experience on Centrifugal Compressors for Small Gas Turbines (78-GT-193) (A) **S 76**
The Reliability of Gas Turbine Powered Compressor Units (78-GT-27) (A) **Ji 89**
Ten Years' Engineering Development in Gas Turbine Driven Natural Gas Compressor Stations (78-GT-74) (A) **Ji 96**
Through Flow Analysis of Centrifugal Compressors (78-GT-110) (A) **Ag 109**
Vector Loop Analysis of Wankel Compressors or Engines (78-DET-1) (A) **D 87**
Vibrations in Very High Pressure Centrifugal Compressors (77-DET-15) (A) **Ja 108**
Compsty, N. A. Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) (A) **Ag 115**
Computation Technique
Stresses in Turbine Blades Due to Temperature and Load Variation (78-GT-158) (A) **Ag 115**
Computational Analyses
Annular Diffuser Performance for an Automotive Gas Turbine (78-GT-147) (A) **Ag 114**
Computational Fracture Models
A Computational Model for Fracture of Pressure Vessel Steel Derived from Experimental Data (78-PVP-92) (A) **N 122**
Computational Methods
The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transients (77-WA/HT-14) (A) **Ap 103**
Computational Study
Radiative Heat Transmission from Nonluminous Gases. Computational Study of the Emissivities of Carbon Dioxide (78-HT-16) (A) **O 94**
Computer-Aided Analysis
Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) (A) **Je 107**
Computer-Aided Design
ASME/CSME and Metal Properties Council Cosponsor PVP Conference (NR) **My 69**
Computer Aided Design of Mixed Flow Turbines for Turbochargers (78-GT-191) (A) **S 76**
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) (A) **S 74**
A Hierarchal Data Organization-Facilitating Interactive Three-Dimensional Design (77-DET-108) (A) **F 125**
A Proposed Scheme for Computer Aided Design and Manufacture of Radial Turbine Rotors (78-GT-156) (A) **Ag 115**
Weight Minimization of a Speed Reducer (77-DET-163) (A) **F 130**
Computer-Aided Synthesis
Computer-Aided Synthesis of a Two-Degree-of-Freedom Planar Linkage for Function Generation (78-DET-30) (A) **D 90**
Computer-Aided Systems
CAD/CAM System Slashes Design Time (BTR) **N 68**
Computer Analyses
Deep Water Position Measuring System for Dynamically Positioned Ships (77-Pet-39) (A) **Ja 102**
Computer Assisted Analysis
Computer Assisted Analysis of Cracking in Zr-2.5 Wt% Nb Pressure Tubes (78-PVP-42) (A) **N 117**
Computer-Based Communications
Computer-Based Communications Aid for Handicapped (BTR) **D 46**
Computer Codes
Computer Code for Predicting the Dynamic Response of High Energy Piping, Pressure Vessels, and Shell Structures Subjected to Transient Loads and Impacts (78-PVP-33) (A) **N 116**
Design of an Elastic Wind Tunnel Model of a Tall Office Building Using a Finite Element Computer Code (77-WA/DE-6) (A) **Mr 93**
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) (A) **Je 101**
Computer Controlled Actuators
Design of Mechanical Components Using Optimal Control (77-DET-46) (A) **Ja 111**
Computer Forecasting
Computer Forecasting is the Answer (ES) **S 20**
Computer Graphics System
A Graphic Man-Computer Environment for Three-Dimensional Engineering Design (77-DET-117) (A) **F 126**
Computer Industry
Review of Wear Problems in the Computer Industry (77-Lub-4) (A) **F 132**
Traction Behavior in Sliding ehl Contacts (77-Lub-5) (A) **F 132**
Computer Model
A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) (A) **O 100**
Thermosyphon Analysis of a Thermic Diode Solar Heating System (77-WA/Sol-9) (A) **My 98**
Computer Optimization
A Strategy for the Optimum Design of Acoustic Space (77-DET-44) (A) **Ja 111**
Computer Programs
Application of a Finite Element Computer Program for Investigating Failure Mechanisms in Military Ammunition (77-WA/DE-20) (A) **Mr 96**
A Computer Program for the Design of Turbomachinery Blades (78-GT-36) (A) **Ji 91**
DREB: A New Tool for Rolling Bearing Performance Simulation (78-DE-15) (A) **S 73**
Numerical Linearization of Themistor Bridge Circuits for in Vivo Medical Research (77-WA/Bio-14) (A) **Ap 99**
Thermal Design Criteria for Solar Hot Water Systems in Tropical Climates (78-HT-37) (A) **O 95**
Computer Services
Engineering Computer Services (ND) **D 58**
Computer Simulation
Computer Simulation of Fluid Control Circuits (77-WA/Fics-6) (A) **Ap 97**
Design and Dynamic Performance of a Hydromechanical Impact Breaker (77-WA/Fics-3) (A) **Ap 97**
Energy Requirements of the Rail Mode (78-RT-1) (A) **O 90**
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) (A) **Ag 109**
Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) (A) **Ja 112**
Stratified Versus Well-Mixed Sensible Heat Storage in a Solar Space Heating Application (78-HT-49) (A) **O 98**
Computer Standards
The Word on Computer Standards (CT) **Ag 82**
Computer Systems
Computer-Generated Cryptography for Data Security (BTR) **Mr 54**
Environmental Monitoring Data Acquisition Computer System (EMD-ACS) (77-WA/APC-3) (A) **My 102**
Scale Models Replace Piping Drawings (BTR) **S 52**
Computer Techniques
Residual Ductility and Residual Stresses in Formed Heads (77-PVP-13) (A) **Ja 107**
Computer Technology
Data Link Uses Fiber Optic Cable (BTR) **O 49**
Computerized Controls
Computerized Handling System (BTR) **Ap 51**
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) (A) **Je 107**
Computerized Selection
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/Prod-4) (A) **My 103**
Computers
A Comparison of Characteristics of Large Process Control Computer Systems (77-WA/Aut-10) (A) **Je 103**
Computer-Run Taping Machine for Generator Coils (BTR) **O 50**
Computer Vision (BTR) **Ja 57**
Conference Stresses Practical Applications of Computers (NR) **My 68**
Decometer: A Microprocessor-Based Decompression Computer for Divers (77-WA/Oce-8) (A) **Ap 93**
Optimal Synthesis of Double Reduction Bevel/Helical Gear Units by Nonlinear Programming (77-DET-172) (A) **F 130**
Optimal Synthesis of Double Reduction Helical Gear Units by Nonlinear Programming (77-DET-171) (A) **F 130**
Propulsion System Design for the Multi-Mission Patrol Ship Mart 1/1A (78-GT-182) (A) **S 75**
Superconducting Computers (BTR) **Ag 63**
Validity of Colville's Time Standardization for Comparing Optimization Codes (77-DET-116) (A) **F 126**
Computing System
Low-Cost Computing System (BTR) **AP 52**
Comtois, W. H. Combustionn Turbines-Economic Choice (77-JPGC-GT-4) (A) **Mr 93**
Concannon, B. T. Energy Requirements of the Rail Mode (78-RT-1) (A) **O 90**
Concentrated Contacts
Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) (A) **Mr 86**
Concentrated Masses
Stability of Elastically Restrained Timoshenko Cantilevers With Attached Masses Subjected to a Follower Force (77-WA/APM-/) (A) **Ji 97**
Concentric Cylinders
Heat Conduction Experiments in Rarefied Gases Confined Between Two Concentric Cylinders (78-HT-34) (A) **O 96**
Concentric Rotating Cylinders
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) (A) **F 133**
Concrete Beams
Simplex Solution of Magnel's Method of Prestressed Concrete Beam Design (77-DET-109) (A) **F 125**
Concrete Containment Structures
Safety Index of Nuclear Concrete Containment Structures (78-PVP-106) (A) **N 124**
Concrete Reactor Vessels
A Method for Reliability Analysis of Concrete Reactor Vessels (78-PVP-100) (A) **N 123**
Condensate Reheating
Condensate Reheating and Separate Reheating Hotwells for Central Station Main Condensers (78-JPGC-Pwr-14) (A) **D 83**
Condenser Design
Verification of High Reliability Condenser Design (77-JPGC-Pwr-14) (A) **Mr 89**
Condenser Models
Velocity Distributions and Turbulence Intensities at Tubesheets in a Two-Pass Condenser Model (78-JPGC-NE-6) (A) **D 85**
Condenser Standards
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) (A) **Mr 91**
Condensers
Condensers Studies to Improve Reliability (BTR) **My 59**
Developments in the Design of Shell-and-Tube Condensers (77-WA/HT-24) (A) **Ap 104**
History and Development of Condensers at the Geysers Geothermal Power Plant (78-JPGC-Pwr-18) (A) **D 84**
Steam Surface Condenser Operating and Design Considerations (78-JPGC-Pwr-19) (A) **D 84**
The Surface Condenser as an Environmental Barrier (78-JPGC-Pwr-17) (A) **D 83**
Two-Phase Flow on the Shell-Side of a Segmentally Baffled Shell-and-Tube Heat Exchanger (77-WA/HT-22) (A) **Ap 103**
Conditioning Monitoring Systems
An Evaluation Technique for Determining the Cost Effectiveness of Condition Monitoring Systems (78-GT-166) (A) **Ag 116**
Conduction
Application of the Finite Element Method to the Inverse Heat Conduction Problems (77-WA/TM-4) (A) **My 96**
An Iterative Approach to the Solution of Inverse Heat Conduction Problems (77-WA/TM-2) (A) **My 95**
Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) (A) **My 96**
Conductive Heat Transfer
Approximate Thawing of Permafrost Beneath a Buried Pipe (77-WA/HT-18) (A) **Ap x03**
Cone/Dual Casing Hanger System
Glomar Challenger's Deep Water Reentry Cone/Dual Casing Hanger System (77-Pet-75) (A) **Ja 106**
Confidence Limits
Mechanical Reliability Confidence Limits (77-WA/DE-12) (A) **Mr 94**
Configuration Behavior
Core Mechanics and Configuration Behavior of Advanced LMFBR Core Restraint Concepts (78-PVP-49) (A) **N 118**
Configuration Change Measurements
Accurately Characterizing a Measured Change in Configuration (78-DET-50) (A) **D 93**

Confined Elastomer Dies
Confined and Unconfined Elastomer Dies for Metal Bending (78-DE-11) (A) **S 72**
Congress
Predictions for the New Year (WW) **D 64**
Conical Baffles
Weak Extinction Limits of Turbulent Flowing Mixtures (78-GT-144) (A) **Ag 114**
Conical Bearing Surfaces
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) (A) **Ap 92**
Conical Diffusers
Experimental Study on Diffusers for Mixed-Flow Machines (78-GT-120) (A) **Ag 110**
Subsonic Compressible Conical Diffuser Flow Analysis (77-WA/FE-2) (A) **Ap 93**
Conical Reamer
The RAPIDEX Conical Reamer (77-Pet-31) (A) **Ja 101**
Conn, A. F. Cavijet® Augmented Deep-Hole Drilling Bits (77-Pet-54) (A) **Ja 104**
Connectivity Sum Reduction
Limit Positions of Spatial Linkages via Connectivity Sum Reduction (78-DET-12) (A) **D 88**
Connors, H. J. Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) (A) **F 122**
Conry, T. F. On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) (A) **Mr 86**
Conseca, G. F. A Biphysical Model for Evaluating Auxiliary Heating and Cooling Systems (78-ENAs-33) (A) **N 113**
Conservation
The Breeder—Now or Never (NR) **Je 66**
Conservation: Cooperation vs. Coercion (WW) **F 71**
Electric Vehicles Spark Interest of 10,000 in Philadelphia (NR) **N 74**
The Evolution of Conservation as a Key Element of National Energy Policy (77-WA/TS-3) (A) **My 98**
Strategic Reserve of Helium Proposed (BTR) **My 58**
They Really Mean It (NB) **N 79**
Conservation Measures
Cheap, Clean, and Available (ES) **Ja 19**
Conservation Plans
Power Engineers Assess Energy Options (ES) **F 27**
Conservation Program
Energy-Saving Heat Pump (ES) **S 20**
Consigny, H. Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) (A) **Jl 89**
Consolidated Nuclear Steam Generator
Thermal-Hydraulic Performance of a Consolidated Nuclear Steam Generator (CNSG) Module (77-JPGC-NE-2) (A) **Mr 89**
Constance, J. D. *(author)* Mechanical Engineering for Professional Engineers' Examinations Including Questions and Answers for Engineer-in-Training Review (CB) **S 78**
Constant Strain Elements
A Constant Strain Element Model Stress Accuracy Prediction Method—ESP (78-PVP-65) (A) **N 119**
Constant Velocity Transmission
Displacement Analysis of Spatial 7R Mechanisms Suitable for Constant-Velocity Transmission Between Parallel Shafts (78-DET-9) (A) **D 88**
Constitution Violation
The Atomic Power Insurance Act Violates The Constitution of The United States (77-WA/TS-5) (A) **My 98**
Construction
Information Methods: For Design and Construction (CB) **Ja 117**
Construction Management
Construction Management: A Professional Approach (CB) **O 107**
Construction Quotas
ASCE Gives Qualified Support to Minority Engineering and Construction Quotas (NR) **D 56**
Consultants
ISI Management and the Role of the Third Party Consultant (78-NE-14) (A) **N 115**
Consulting Engineers
ESCOE Advises DOE on Energy Programs (NR) **O 64**
Government Regulations Plague Consulting Engineers (NB) **Ap 71**
Consumer Labeling
How Warm is That Coal? (NB) **Ap 72**
Consumer Movement
Simulation—A Key to Improved Design (A Progress Report on a Case Study) (78-DE-10) (A) **S 73**
Consumer Product Safety Act
Avoiding Product Recalls (NB) **Ap 72**
Consumer Protection
A Case for the P.E.'s Design Responsibility (PS) **Ap 79**
Solar Energy Consumer Protection (ES) **D 14**
Quality Control for Profit (CB) **Je 113**
Consumer Sewing Machine
Pattern Control System Requirements for an Electronic Consumer Sewing Machine (78-DE-12) (A) **S 72**
A Servo Control System Design for Electronic Pattern Control in a Consumer Sewing Machine (78-DE-14) (A) **S 73**
Contact Asperity Interactions
Asperity Interactions in EHD Contacts (77-Lub-19) (A) **Mr 86**
Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) (A) **Mr 86**
Contact Bearings
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) (A) **Mr 86**
Contact Fatigue
Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) (A) **F 132**
Contact Lines Envelope
An Analysis of Undercut Conditions and of Appearance of Contact Lines Envelope Conditions of Gears (77-DET-2) (A) **Ja 108**
Contact Pattern
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) (A) **Ja 114**
Contact Resistances
An Approach to Solving Controls Compartment Heating Problems on Air-Launched Missiles (78-ENAs-12) (A) **N 111**
Contact Separation
Dynamic Response Characteristics of Contact Separation in a Preloaded Mechanical Joint (78-DET-48) (A) **D 92**
Contact Stress
Weight Minimization of a Speed Reducer (77-DET-163) (A) **F 130**
Contact Surfaces
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling Sliding Conditions (77-DET-47) (A) **Ja 112**
On the Design of Surface Durability of Rolling-Sliding Contact Surface (77-DET-115) (A) **F 125**
Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) (A) **Mr 86**
Contaminant Level
Spectrometric Analysis of Residual Fuel (78-GT-93) (A) **Ag 107**
Contaminant Particles
Contamination in Lubrication Systems (77-WA/Lub-1) (A) **Jl 96**
Conte, F. Phenix Plant Operation and Maintenance Experience (78-JPGC-NE-2) (A) **D 84**
Continuing Education Activities
Career Development Programs (EN) **F 68**
Continuing Education Courses
Guide to Short Courses (EN) **F 69**
Continuous Extrusion Process
Theory of Linear Continuous Extrusion Linex (77-WA/Prod-17) (A) **Je 105**
Continuous Measurement Instrument
Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) (A) **Ap 98**
Contra Swirler Module
Flame Characteristics of a NASA Contra Swirler Module (78-GT-163) (A) **Ag 116**
Contract Formulation
Formulating an International Contract for Engineering and Technical Services (77-WA/Mgt-4) (A) **My 96**
Control Actuator Design
Pattern Control Actuator Design for Electronically Controlled Sewing Machine (78-DE-13) (A) **S 74**
Control Algorithms
Control of a Single-Actuator Shaking Table (77-WA/Aut-11) (A) **Je 103**
Microcomputer Implementation of Direct Digital Control Algorithms for Thermal Process Control Applications (77-WA/Aut-3) (A) **Je 102**
Control Development
New Developments in Instrumentation and Control (77-WA/PID-1) (A) **My 101**
Control Integration
Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**
Control Logic
Development of Gas Turbine Performance Seeking Logic (78-GT-13) (A) **Jl 88**
Control Principles
The Application of Fracture Control Principles to Freight Car Center-Sill Structures (78-RT-7) (A) **O 91**
Control Systems
Correction of Optimal Parameters in Systems with Small Delays (77-WA/Aut-7) (A) **Je 103**
Designing for Reliability the Large Steam Turbine Mark II Control System (77-JPGC-Pwr-4) (A) **Mr 88**
A Digital Fuel Control System for Gas Turbines (78-GT-99) (A) **Ag 108**
Gas Turbine Commissioning Procedure (78-GT-54) (A) **Jl 94**
A Microprocessor Based Hierarchical Control System for Gas Turbines (78-GT-124) (A) **Ag 111**
Physiological Requirements for Design of Environmental Control Systems: Control of Heat Stress in High-Performance Aircraft (78-ENAs-22) (A) **N 113**
Powerplant Integration—the Application of Current Experience to Future Developments (78-GT-113) (A) **Ag 109**
A Rotating Stall Control System for Turbojet Engines (78-GT-115) (A) **Ag 109**
Control Technology
Full Authority Digital Electronic Control—Highlights of Next Generation Propulsion Control Technology (78-GT-165) (A) **Ag 116**
Process Control Equipment Will Double (NB) **Ag 74**
Control Theory
Flank Wear Model of Cutting Tools Using Control Theory (77-WA/Prod-20) (A) **Je 105**
Controlled Rolling Process
Development of Sumitomo High Toughness Process (SHT) for Arctic Grade Line Pipes (77-Pet-61) (A) **Ja 104**
Controllers
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) (A) **Je 103**
Controls Compartment
An Approach to Solving Controls Compartment Heating Problems on Air-Launched Missiles (78-ENAs-12) (A) **N 111**
Convecting System
A Helium Cooling System for Large Superconducting A.C. Generators (77-WA/HT-36) (A) **Ap 105**
Convection
Analysis of Mixed Convection About a Sphere with Uniform Surface Heat Flux (77-WA/HT-1) (A) **Ap 101**
Effect of Stabilizing Thermal Gradients on Natural Convection in Rectangular Enclosures (78-HT-42) (A) **O 97**
Energy Equations for Convection in Saturated Porous Media (78-HT-54) (A) **O 97**
Experiments on the Role of Natural Convection and Heat Source Arrangement in the Melting of a Solid (78-HT-47) (A) **O 97**
Finite Amplitude Benard Convection of Purely Radiating Fluids (78-HT-40) (A) **O 96**
Finite Amplitude Instability and Penetrative Convection in a Rotating Fluid (78-HT-39) (A) **O 96**
Gas Turbine Combustor Cooling by Augmented Backside Convection (78-GT-33) (A) **Jl 90**
Heat Transfer and Onset of Convection in a Melted Water Layer (78-HT-41) (A) **O 97**
Natural Convection Heat Transfer in Beds of Inductively Heated Particles (77-WA/HT-2) (A) **Ap 101**
Natural Convection Turbulent Boundary Layers Next to Heated Vertical Surfaces (77-WA/HT-32) (A) **Ap 105**
Natural Convection from a Vertical Isothermal Surface Imbedded in a Saturated Porous Medium (78-HT-55) (A) **O 97**
Perturbation Solutions to Phase Change Problem Subject to Convection and Radiation (77-WA/HT-16) (A) **Ap 102**
Potential Improvement of Solar Pond Efficiency by Downward Convection (77-WA/HT-6) (A) **Ap 102**
Three-Dimensional Natural Convection in a Confined Porous Medium Heated from Below (78-HT-56) (A) **O 98**
Convection Flow
Buoyancy Induced Convection Flow in Porous Media with Heat Source (78-HT-57) (A) **O 98**

Convective Cooling
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) (A) **Je 106**
Convective Heat Loss
Approximate Analysis of Heat Transfer from the Surface of a Wet Finned Heat Exchanger (78-HT-26) (A) **O 94**
Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) (A) **Ap 98**
Convective Heat Transfer in Porous Media (78-HT-45) (A) **O 96**
Convective Heat Transfer
The Effects of Streamline Curvature on Reynolds Analogy (77-WA/FE-17) (A) **Ap 95**
Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) (A) **Ag 110**
Thermal Response of Slabs Subjected to Nonsymmetric Convective Heat Transfer (78-DE-8) (A) **S 72**
Conventional Trucks
High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) (A) **Mr 84**
Conversion Efficiencies
Great Increases in Conversion Efficiencies Predicted (NR) **O 62**
Conversion Systems
Low-Grade Thermal Energy-Conversion Joule Effect Heat Engines (78-ENAs-7) (A) **N 110**
Conveyor Belts
Single-Unit Conveyor Belt Avoids Multi-Ply Patchwork (BTR) **D 44**
Conveyor Chains
A Technique for Assessing the Running Life of Thermoplastic Conveyor Chains (77-DET-160) (A) **F 129**
Convocation
Convocation Comment (C) **D 36**
Post-Convocation Update (CC) **D 67**
Cook, G. E. The Merrick "Hot Piper" Automated Pipe Welding System (77-Pet-62) (A) **Ja 104**
Cook, T. M. Real-Time Force Line Visualization: Bioengineering Applications (77-WA/Bio-6) (A) **Mr 97**
Coolant Flow Rates
Profile Loss Characteristics and Heat Transfer of Full Coverage Film-Cooled Blading (78-GT-98) (A) **Ag 108**
Coolant Loops
Active Thermal Control Subsystem Development (78-ENAs-6) (A) **N 110**
Coolant Pump
Nonlinear Transient and Spectrum Response Seismic Analysis of a Reactor Coolant Pump (78-PVP-36) (A) **O 105**
Coolant Systems
Dynamic Analysis of a Pressurized Water Reactor Coolant System Subjected to Postulated Loss-of-Coolant Accident Transient Loads (77-WA/DE-23) (A) **Mr 96**
Cooled Sections
Flow in a Toroidal Thermosyphon with Angular Displacement of Heated and Cooled Sections (78-HT-44) (A) **O 97**
Cooled Surfaces
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) (A) **Jl 89**
Cooley, D. B. Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) (A) **Mr 85**
Cooling
Advanced Environmental Cooling Concepts for Supersonic Aircraft (78-ENAs-21) (A) **N 112**
Cigar-Box-Sized Refrigerator (BTR) **Ag 57**
Convective Heat Transfer in Porous Media (78-HT-45) (A) **O 96**
Cooling Characteristics of Film Cooled Turbine Vane Having Multi-Row of Ejection Holes (78-GT-21) (A) **Jl 89**
Cooling Hot Metal Parts in Combustion Equipment (ES) **Jl 22**
Full Load Tests of the 80-MW Gas Turbine V 93.2 Using a Water Brake (78-GT-68) (A) **Jl 95**
Gas Turbine Combustor Cooling by Augmented Backside Convection (78-GT-33) (A) **Jl 90**
Heat Transfer in Lead-Acid Batteries (78-HT-52) (A) **O 97**
A High Temperature Turbine Research Module (77-GT-73) (A) **Ag 105**
Jet Cooling at the Rim of a Rotating Disk (78-GT-25) (A) **Jl 85**
PWR Normal Shutdown Transient Response Using Runge-Kutta's Technique (78-JPGC-Pwr-1) (A) **D 82**
Cooling Concepts
Evaluation of a Water-Cooled Gas Turbine Combined Cycle Plant (78-GT-77) (A) **Ag 105**
Cooling Loops
An Experiment Cooling Loop for Spacelab Payloads (78-ENAs-29) (A) **N 113**
Cooling Systems
Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) (A) **Ap 94**
A Biphysical Model for Evaluating Auxiliary Heating Cooling Systems (78-ENAs-33) (A) **N 113**
Cooling it with Sun Power (BTR) **Mr 53**
Cutting Cooling Costs (ES) **D 14**
The Development of a Rotating Liquid Helium Flow Circuit (77-WA/HT-37) (A) **My 99**
Dry-Ice, Liquid-Pulse-Pump, Portable Cooling System (78-ENAs-41) (A) **D 87**
A Helium Cooling System for Large Superconducting A.C. Generators (77-WA/HT-36) (A) **Ap 105**
Performance and Design Transpiration-Cooled Turbine Blading (78-GT-122) (A) **Ag 111**
Simplicity: Key to Solar Success (BTR) **N 67**
Solar Simulator Helping to Set Standards (BTR) **O 48**
Cooling Tower
Approximate Analysis of Heat Transfer from the Surface of a Wet Finned Heat Exchanger (78-HT-26) (A) **O 94**
Cooling Turbines
The Application of Foil Air Bearing Turbomachinery in Aircraft Environmental Control Systems (78-ENAs-18) (A) **N 111**
Cooling Vest
Cooling Vest (BTR) **My 56**
Cooper, D. L. Deep Water Positioned Measuring System for Dynamically Positioned Ships (77-Pet-39) (A) **Ja 102**
Cooper, G. P. ME's Mistake (C) **Ap 46**
Cooper, W. E. Safety Evaluation of Reactor Vessel Nozzle Cracks (78-PVP-90) (A) **N 122**
Cooper, W. F. *(author)* Electrical Safety Engineering (CB) **N 126**
Cooperrider, H. K. Lateral Stability of Freight Cars With Axles Having Different Wheel Profiles and Asymmetric Loading (78-RT-3) (A) **O 90**
Coordinating Committee on Energy
Understanding the Energy Issue: The Public Needs to Know (NR) **Ja 76**
Coops, W. J. Maintenance and Requalification of a Large LMFBR Component (78-JPGC-NE-1) (A) **D 84**
Copper, C. L. *(editor)* Stress at Work (CB) **D 98**
Core Auxiliary Heat Exchangers
Core Auxiliary Heat Exchanger Design for HTGR (78-NE-9) (A) **N 144**
Core Components
Development of Structural Design Criteria for Highly Irradiated Core Components (78-PVP-78) (A) **N 121**
Core Design
Application of LIFE Transient Codes to Experimental and Core Design (78-PVP-51) (A) **N 118**
Core Mechanics
Core Mechanics and Configuration Behavior of Advanced LMFBR Core Restraint Concepts (78-PVP-49) (A) **N 118**
Corman, J. C. Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal (77-WA/Ener-9) (A) **My 94**
Corneas
The Eyes Have It (BTR) **Ja 63**
Cornell, A. D. Mechanical Systems for Handling Drill Pipe, Riser, and Casing (77-Pet-77) (A) **Ja 106**
Cornell, R. W. Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) (A) **F 124**
Corona Discharge Air Jet
Heat Transfer Augmentation Using a Corona Discharge Air Jet (78-ENAs-8) (A) **N 111**
Corpora, C. J. Operating Experience and Advanced Technique in Liquid Radwaste Processing (77-JPGC-NE-17) (A) **Mr 91**
Corporate Chiefs
More Engineers are Becoming Corporate Chiefs (NR) **Ja 75**
Correction Factors
The Effects of Ambient Conditions on Gas Turbine Emissions-Generalized Correction Factors (78-GT-87) (A) **Ag 107**
Corrosion
Avoiding Corrosion of Steam Turbine Components During Erection and Layup (78-JPGC-Pwr-5) (A) **D 83**
Erosion-Corrosion Effects on Boiler Tube Metals in a Multi-solids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**
The High Cost of Corrosion (BTR) **My 61**
Hot Corrosion of Gas Turbine Components (78-GT-82) (A) **Ag 106**
Hot Corrosion in Gas Turbines (77-WA/Fu-3) (A) **My 92**
One Less Geothermal Worry! (ES) **Je 19**
Corrosion Control
War on Industrial Corrosion (NB) **Ap 73**
Corrosion and Deposits
An Economic Evaluation of Washed Coal for the Four Corners Generating Station (77-WA/CD-2) (A) **My 101**
Erosion-Corrosion Effects on Boiler Tube Metals in a Multi-solids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**
Corrosion-Inhibiting Additives
The Effects of Smoke Suppressant and Corrosion Inhibiting Fuel Additives on the Particulate and Gaseous Emissions from a Utility Gas Turbine (78-GT-64) (A) **Jl 95**
Corrosion Resistant Materials
Marine Spey—SM1A Propulsion Module (78-GT-58) (A) **Jl 94**
Corrosion Resistant Steel
Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant High Temperature Bearing Steel (77-Lub-30) (A) **Mr 87**
Corrosion Testing
Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**
Corvan, H. J. *(author)* The Master Builders: A History of Structural and Environmental Design from Ancient Egypt to the 19th Century (CB) **My 106**
Corwin, S. C. The Theory of Static Loads in Bins (77-WA/APM-1) (A) **Je 111**
Cory, J. F., Jr. Seismic Design Study on Cantilever Cylindrical Shells (77-PVP-14) (A) **Ja 107**
Cory, J. S. Low-Grade Thermal Energy-Conversion Joule Effect Heat Engines (78-ENAs-7) (A) **N 110**
Cosmic Microwave Measurements
Big Bang Was a "Cool" Show (BTR) **F 57**
Cosmic Rays
Ocean as "Eye" on Cosmos (BTR) **Jl 48**
Cost/Benefit Analysis
Environmental Standards Need Cost/Benefit Analysis **F 32**
Cost Comparison
Operating Economics and Unit Availability (77-JPGC-Pwr-5) (A) **Mr 88**
Cost Effectiveness
The Application of Low Cost Manufacturing Technology to a Turbine Gas Generator (78-GT-202) (A) **S 77**
Cost-Effectiveness Study of Heat Pipe Heat Exchangers (77-WA/HT-5) (A) **Ap 101**
ECLSS Definition for a Low-Cost Space Construction Base (78-ENAs-15) (A) **N 112**
An Evaluation Technique for Determining the Cost Effectiveness of Condition Monitoring Systems (78-GT-166) (A) **Ag 116**
Making Turbofan Engines More Energy Efficient (78-GT-198) (A) **S 76**
Cost Estimation
Estimating and Project Management for Small Construction Firms (CB) **Ja 117**
U.S. Army Recycles Heat-and Dollars (BTR) **Ja 59**
Cost Evaluation
Performance and Cost Evaluation for a Thermionic Topping Power Plant (77-WA/Ener-7) (A) **My 94**
Cost Factor
Derivation of Cost Factor for Novel Mining Energy Source Minerals (77-Pet-46) (A) **Ja 103**
Cost Reduction
Military Engine Usage Monitoring Developments in the United Kingdom (78-GT-65) (A) **Jl 95**
Reducing Costs With Coordinated Advanced Design and Production Techniques (78-DE-9) (A) **S 72**
Cost Savings Alternative
An Example of Additive Damping as a Cost Savings Alternative to Redesign (77-WA/GT-2) (A) **Ap 100**
Cost Study
Costs and Causes of Maintenance in a Ship's Diesel Propulsion System (77-WA/Lub-2) (A) **Jl 96**
Cost Tradeoff Analysis
Effects of Steam Injection on the Performance of Gas

Turbine Power Cycles (78-GT-11) (A) **JI 87**

Costantino, C. J. Locating Pipe Supports for Combined Thermal and Seismic Loading (77-PVP-63) (A) **Ja 108**

Costello, R. M. Conceptual Design of a Coal-Fueled, Fluid Bed Combined Cycle Power Plant (77-WA/Ener-11) (A) **My 95**

Cottington, R. V. Dynamic Response Testing of Gas Turbines (78-GT-31) (A) **JI 90**

Cotton Blends
Combing and Opening Room Blends of Cotton and Polyester (77-Tex-5) (A) **F 132**

Cotton Fiber
A New Hooked Needle Device for Forming Fiber Beards for Length and Strength Measurement (77-Tex-2) (A) **F 131**

Cotton Yarns
The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) (A) **F 132**

Coulomb Damping
Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) (A) **Mr 85**

Counterweighted Rocker Link
The Elastic-Dynamic Behavior of a Counterweighted Rocker Link with an Overhanging Endmass in a Four-Bar Linkage Part I: Theory (78-DET-23) (A) **D 90**; Part II: Application and Experiment (78-DET-24) (A) **D 90**

Coupled Twist Bending
Effect of Transverse Shearing Deformations on the Coupled Twist-Bending of Curved Beams (78-PVP-102) (A) **N 124)**

Coupler Carrier Wear Plates
Wear Test on Coupler Carrier Wear Plates (77-WA/RT-8) (A) **Mr 84**

Coupler Curves
Synthesis of the Four-Bar Mechanisms for the Generation of Symmetrical "V" Shaped Coupler Curves of Specified Flank Angles for Linkage-Geneva Mechanisms (78-DET-52) (A) **D 91**

Coupler Links
Partial Dynamic State Synthesis by Use of Mass Parameters in a System Coupler Link (78-DET-61) (A) **D 93**

Coupling Selection
Coupling Selection for Synchronous Motor Drive System (77-DET-131) (A) **F 127**

Couplings
A New Wrinkle to Diaphragm Couplings (77-DET-128) (A) **F 127**

Courtney, W. J. Three High-Pressure Component Failures (78-Mat-3) (A) **O 98**

Coutinho, J. de S. Simulation—A Key to Improved Design (A Progress Report on a Case Study) (78-DE-10) (A) **S 73**

Cowan, R. G. Acid Digestion and Pressurization Control in Combustible Radwaste Treatment (78-NE-17) (A) **N 115**

Coy, J. J. Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) (A) **F 126**

Cozzens, B. A. Real-Time Force Line Visualization: Bioengineering Applications (77-WA/Bio-6) (A) **Mr 97**

Crack Arrest
Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**

Crack Arrest Analysis
Analysis of Crack Arrest in Reactor Pressure Vessels (78-Mat-16) (A) **O 100**

Crack Arrest Toughness
A Photoelastic Evaluation of the Method of Measuring Crack Arrest Toughness with a Tapered DCB Specimen (78-Mat-15) (A) **O 100**

Crack Effects
Fuel Porosity and Crack Effects on Transient Overpower Analysis (78-PVP-52) (A) **N 118**

Crack Geometries
On the Stimulation of Geothermal Reservoir by Downward Hydraulic Fracturing (77-Pet-81) (A) **Ja 107**

Crack Growth
Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) (A) **Je 110**
Fatigue Crack Growth Model for Part-Through Flaws in Plates and Pipes (78-Mat-9) (A) **O 99**
Significance of Delta Ferrite Content to Fatigue Crack Growth Resistance of Austenitic Stainless Steel Weld Deposits (78-PVP-9) (A) **O 102**
Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) (A) **Je 109**
Stress Corrosion Crack Growth and Fracture Predictions for BWR Piping (78-Mat-23) (A) **O 101**

Crack Growth Behavior
Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) (A) **O 99**
Frequency Effects in the Elevated Temperature Crack Growth Behavior of Austenitic Stainless Steel—A Design Approach (78-PVP-97) (A) **N 123**

Crack Growth Rate
Residual Fatigue Life Determination of Anchor Bolts (78-Mat-8) (A) **O 99**

Crack Initiation
Experimental Investigation of the Angled Elliptic Notch Problem in Tension (77-WA/APM-6) (A) **Je 111**

Crack Propagation
Crack Propagation in Rotating Shafts (77-DET-164) (A) **F 130**
Fatigue Crack Propagation in 8 and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) (A) **Je 109**
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) (A) **O 101**
A Model for Axial Splitting Under Uniaxial Compression (77-Pet-73) (A) **Ja 106**

Crack Tip Elements
A Three-Dimensional Finite Element Analysis of the Double Torsion Test (78-PVP-96) (A) **N 123**

Cracked Bodies
Dynamic Finite Element Analysis of Cracked Bodies (78-PVP-94) (A) **N 123**

Cracking
Computer Assisted Analysis of Cracking in Zr-2.5 Wt% Nb Pressure Tubes (78-PVP-42) (A) **N 117**
Preventing Microcracking in High-Carbon Steels (BTR) **Je 58**

Cracking Tests
Results of Sulfide Stress Cracking Tests in Different Laboratories on SAE 4135 Steel Modified with 0.75 Percent Mo and 0.035 Percent Cb (77-Pet-48) (A) **Ja 103**

Cracks
Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) (A) **Je 109**
Asymmetric Branching of Cracks (77-WA/APM-16) (A) **JI 98**
On the Changing Order of Singularity at a Crack Tip (77-WA/APM-15) (A) **JI 98**
The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) (A) **Je 108**
Effect of Axial Force on Dynamic Fracture of a Beam or Plate in Pure Bending (77-WA/APM-22) (A) **JI 98**
Embedded Elliptical Crack at a Corner (78-PVP-5) (A) **O 102**
Fatigue Crack Propagation of Short Cracks (78-Mat-7) (A) **O 100**
Fracture Analysis of the Adhesively Bonded Cracked Panels (77-WA/Mat-2) (A) **Je 108**
Good Breaks! (BTR) **Ag 59**
Stress Analysis and Stress-Intensity Factors for Finite Geometry Solids Containing Rectangular Surface Cracks (77-WA/APM-5) (A) **JI 97**
Stress Intensity Factor Calculations for Circular Cracks at the Intersections of Pressurized Cylindrical Shells (78-PVP-24) (A) **O 104**
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) (A) **JI 98**
On the Use of Strain Energy Density Fracture Criterion in the Design of Gears Using Finite Element Method (77-DET-158) (A) **F 129**

Crandall, S. H. Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) (A) **Ja 115**; Wide-Band Random Vibration of Circular Plates (77-DET-97) (A) **F 123**

Cranes
Controlling Bridge Cranes via Electric Clutch (BTR) **My 61**
Super Crane (BTR) **O 57**

Crank-and-Rocker Linkages
Optimization of Crank-and-Rocker Linkages with Size and Transmission Constraints (78-DET-6) (A) **D 87**
Performance Criteria for High-Speed Crank-and-Rocker Linkages Part I: Plane Crank-and-Rocker Linkages (78-DET-33) (A) **D 90**; Part II: Spherical Crank-and-Rocker Linkages (78-DET-34) (A) **D 91**

Crashworthy Helicopter
Experimental Investigation of Simulated Helicopter Fuel Cell Impact Phenomenon (78-DET-79) (A) **D 95**

Crater Wear
Analytical Prediction of Three-Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) (A) **Je 104**

Cravalho, E. G. Kinetics of Thermal Injury of Cell Populations Exposed to Supraphysiological Temperatures (77-WA/HT-44) (A) **My 100**

Crawford, D. E. Performance of GM10B Electric Locomotive (C) **Mr 48**

Crawford, M. Transient Conduction in the Space Surrounding a Ring of Holes (77-WA/HT-12) (A) **Ap 102**

Creates, D. H. Structural Design of Piping for CANDU Nuclear Stations (78-NE-1) (A) **N 114**

Creativity
Creative Growth Games (CB) **F 134**

Creep Coefficient
Lateral Stability of Freight Cars With Axles Having Different Profiles and Asymmetric Loading (78-RT-3) (A) **O 90**

Creep Elongation
Design and Analysis of a Compact Array of (Class 1) Nuclear Piping for Large Anchor Movements and Seismic Supports (78-PVP-29) (A) **O 104**

Creep Evaluator
The Turbine Fatigue and Creep Evaluator Determination of Cumulative Low-Cycle Fatigue and Creep from Steam Turbine Operational Measurements (77-JPGC-Pwr-3) (A) **Mr 88**

Creep-Fatigue Failures
Application of Damage Concepts to Predict Creep-Fatigue Failures (78-PVP-26) (A) **O 104**

Creep-Fatigue Interaction
The Effect of Cycle Shape on Creep-Fatigue Interaction in Austenitic Stainless Steels (78-PVP-89) (A) **N 122**
A Linear Uniaxial Damage Accumulation Law for Creep-Fatigue Interaction (78-PVP-63) (A) **N 119**

Creep Properties
Strength of 304L Stainless Steel and Inconel Alloy 601 at Temperatures Above 1000°C (78-PVP-31) (A) **O 104**

Creep-Rupture Data
On the Minimum-Commitment Method for Correlation of Creep-Rupture Data (78-Mat-18) (A) **O 100**
On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) (A) **O 98**

Creep Test Specimen
Finite Element Analysis of a Large Ridge Inert Atmosphere Creep Test Specimen (78-PVP-7) (A) **O 102**

Creeping
Inelastic Stress Distribution in Tubesheet Ligaments Under Thermal and Mechanical Loading (77-JPGC-NE-22) (A) **Mr 91**

Crew Efficiency
Vestibular Function Research Aboard Spacelab (78-ENAs-25) (A) **N 112**

Crisp, J. N. Analysis of Transient Heat Transfer in Porous Solids with Application Toward Phase Separation Processes (77-WA/HT-13) (A) **Ap 102**

Critical Heat Flux
Recent Advances in Evaluating Critical Heat Flux Conditions in LMFBR Steam Generators (77-WA/NE-11) (A) **Je 101**

Critical Speeds
Critical Speeds, Stability, and Response of a Geared Train of Rotors (77-DET-30) (A) **Ja 110**

Cross Flow
Cross Flow Induced Vibrations in a Tube Bank (78-PVP-25) (A) **O 104**
Dynamic Response of a Circular Cylinder Subjected to Liquid Cross Flow (78-PVP-15) (A) **O 103**

Cross Flow Heat Exchangers
Predicting Sonic Vibration in Cross Flow Heat Exchangers—Experience and Model Testing (77-WA/DE-28) (A) **Mr 98**

Cross Sections
Torsion of Bars of Solid Polygonal and Hollowed Polygonal-Circular Cross Sections (77-WA/DE-27) (A) **Mr 96**

Crossflow
Response of a Tube Bank of Turbulent Crossflow Induced Excitation (77-DET-142) (A) **F 128**

Crossflow Heat Exchanger
The Effect of Nonuniform Fluid Flow Distribution on Thermal Performance of Crossflow Heat Exchanger (77-WA/HT-3) (A) **Ap 101**

Crossland, B. Thoughts on a Code of Practice for Forged High Pressure Vessels of Monobloc Design

(78-PVP-62) (A) **N 119**

Crowther, K. Breeder Reactors (C) **D 36**; Other Looks at "Energy Realities" (C) **Jl 44**

Crude Fuel Oils
Atomization of Crude and Residual Fuel Oils (78-GT-83) (A) **Ag 106**

Crude Oil
Problems and Operating Experiences with Gas Turbines Burning Residual and Crude Oils (78-GT-103) (A) **Ag 108**

Crude Oil Storage
Salt Cavern Crude Oil Storage Program (BTR) **N 64**

Crude Oil Transportation
West Coast—Mid Continent Pipeline Project. (Engineering/Management Phases for Conversion of Natural Gas Transmission Systems to Crude Oil Transportation) (77-Pet-65) (A) **Ja 105**

Cruise Propulsion Systems
The Gas Turbine Waste Heat Recovery System and the U.S. Navy (78-GT-170) (A) **Ag 116**

Crustal Deformations
Real-Time Monitoring of Crustal Deformations (BTR) **O 54**

Crystallography
Ewald Honored by Crystallographers (BTR) **Jl 49**

Cuboidal Element
On the Stress Field Due to Initial Strains in a Cuboid Surrounded by an Infinite Elastic Space (77-WA/APM-17) (A) **Jl 98**

Cuffe, K. W. Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) (A) **Jl 89**

Cutlers
The Geometrical Analysis on Gear Skiving of Internal Gears (77-DET-133) (A) **F 133**

Cumulative Damage
Low-Cycle Cumulative Damage with Two-Strain Repeated Blocks on a Stainless Steel at High Temperature (78-PVP-88) (A) **N 122**

Cunningham, R. E. Steady-State Unbalance Response of a Three Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) (A) **F 124**

Cunningham, W. C. Cementing Through Permafrost Environment (77-Pet-37) (A) **Ja 102**

Curran, R. A Computational Model for Fracture of Pressure Vessel Steel Derived from Experimental Data (78-PVP-92) (A) **N 122**

Curran, R. M. The Effects of Water Chemistry on the Reliability of Modern Large Steam Turbines (78-JPGC-Pwr-9) (A) **D 83**

Current Carrying Mechanisms
The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) (A) **Ja 109**

Current Meter Corrections
Current Meter Corrections for Turbulence (77-WA/FM-3) (A) **Ap 100**

Curtis, D. M. Optimum Design of the Homogeneous Plane-Stress Flywheel (77-DET-112) (A) **F 125**

Curvature Theory
Higher Order, Planar Tangent-Line Envelope Curvature Theory (78-DET-21) (A) **D 89**

Curve Procedures
Reference Fracture Toughness Curves for Irradiated Pressure Vessel Steels (78-Mat-20) (A) **O 101**

Curved Beams
Effect of Transverse Shearing Deformations on the Coupled Twist-Bending of Curved Beams (78-PVP-102) (A) **N 124**

Curved Pipes
The Effect of Thickness Variations on the Behaviour of Smooth Curved Pipes Under External Bending (78-PVP-93) (A) **N 123**

Curved Surfaces
Fast Generation and Manipulation of Curved Surfaces—A Tool for Computer Aided Design (77-DET-106) (A) **F 125**

Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) (A) **Ap 94**

Curves
A Complementary Large Slip Solution in V-belt Mechanics (77-DET-162) (A) **F 130**

Optimizing Turbine Stage Efficiency by Selecting and Matching Reaction, Velocity Ratio, and Clearance Ratio (77-WA/FE-10) (A) **Ap 94**

A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) (A) **Je 104**

The Trailing Shoe Type Centrifugal Clutch—Design Principles and Characteristics (77-DET-126) (A) **F 126**

Cusano, C. On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) (A) **Mr 86**

Cutlers
Gas Pressure Bonding of Stratapax (77-Pet-72) (A) **Ja 105**

Cutting
On a New Model of Oblique Cutting (77-WA/Prod-6) (A) **Je 104**

Tool Life Distribution: Part 3—Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) (A) **Je 108**

What Designers Should Know About Laser Welding and Cutting **Je 44**

Cutting Edges
Optimal Edge Geometry for Maximum Tool Life (77-WA/Prod-43) (A) **Je 108**

Cutting Equations
High Energy Water Jet Cutting Equations for Wood (77-WA/Prod-18) (A) **Je 104**

Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) (A) **Je 107**

Cutting Process
Analytical Prediction of Three-Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) (A) **My 103**; Part 2: Chip Formation and Cutting Force with Conventional Single-Point Tool (77-WA/Prod-10) (A) **Je 104**; Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) (A) **Je 104**

Cutting Process Dynamics
Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) (A) **Je 108**

Cutting Tools
Correlation of Tempering Effects With Temperature Distribution in Steel Cutting Tools (77-WA/Prod-16) (A) **Je 104**

Dynamic Accuracy of Hybrid Profiling Mechanisms in Cam Manufacturing (77-WA/DE-3) (A) **Mr 93**

Flank Wear Model of Cutting Tools Using Control Theory (77-WA/Prod-20) (A) **Je 105**

Optimal Design of Multi-Edge Cutting Tools for BTA Deep-Hole Machining (78-DET-66) (A) **D 94**

Cuzzi, J. R. Accurately Characterizing a Measured Change in Configuration (78-DET-50) (A) **D 93**

Cybernetics
Cybernetic Considerations in the Use of Myoelectric Activity for Prosthesis Control (77-WA/Bio-10) (A) **Ap 98**

Cycle Optimization
Compressed Air Energy Storage Turbomachinery (78-GT-97) (A) **Ag 108**

Cycle Shapes
The Effect of Cycle Shape on Creep-Fatigue Interaction in Austenitic Stainless Steels (78-PVP-89) (A) **N 122**

Cyclic Fatigue Life
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) (A) **Ap 92**

Cyclic Loading
Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) (A) **O 102**

Fatigue Crack Growth Model for Part-Through Flaws in Plates and Pipes (78-Mat-9) (A) **O 99**

Cyclic Plasticity
Cyclic Plasticity for Non-proportional Paths: Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) (A) **Je 110**

Cyclic Queuing Theory
Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/Prod-32) (A) **Je 607**

Cyclic Thermal Stress
Stresses in Turbine Blade Due to Temperature and Load Variation (78-GT-158) (A) **Ag 115**

Cylinder-to-Cylinder Structure
Analytical and Experimental Stress Analysis of a Cylinder-to-Cylinder Structure (77-PVP-11) (A) **Ja 108**

Thermal Transient Stress Analysis of Cylinder-to-Cylinder Structures by the Finite Plate Method (78-PVP-76) (A) **N 120**

Cylinder-to-Plate Intersection
Finite Element Analysis of a Cylinder-to-Plate Intersection (78-PVP-17) (A) **O 103**

Cylinders
An Analysis of Nonsimilar Boundary Layer Containing Liquid-Droplets Over a Heated Circular Cylinder (78-HT-20) (A) **O 94**

Automatic Cylinder Inspection (IF) **My 64**

Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) (A) **S 74**

Dynamic Fracture of 6061-T6 Aluminum Cylinders (77-WA/APM-14) (A) **Jl 97**

Dynamic Response of a Circular Cylinder Subjected to Liquid Cross Flow (78-PVP-15) (A) **O 103**

Embedded Elliptical Crack at a Corner (78-PVP-5) (A) **O 102**

Experiments on the Role of Natural Convection and Heat Source Arrangement in the Melting of a Solid (78-HT-47) (A) **O 97**

Extended Mixing-Length Hypothesis Application to Transpired or Roughwall Compressible Boundary Layers (78-HT-22) (A) **O 94**

Fluid-Structure Interaction Calculations for Cylinders Impacting a Water Pool (78-PVP-59) (A) **N 119**

Heat Conduction Experiments in Rarefied Gases Confined Between Two Concentric Cylinders (78-HT-34) (A) **O 96**

The Longitudinal Water Boundary Layer Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**

A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) (A) **F 132**

"Rolling Cylinder" Heat Storage Device (BTR) **Mr 55**

On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) (A) **F 123**

A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) (A) **Jl 98**

Cylindrical Coordinates
A Two-Dimensional Numerical Solution to Freezing/Melting in Cylindrical Coordinates (77-WA/HT-11) (A) **Ap 102**

Cylindrical Disks
Disk and Strip Forging with Side-surface Foldover: Part 1—Velocity Field and Upper Bound Analysis (77-WA/Prod-36) (A) **Je 107**; Part 2—Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) (A) **Je 107**

Cylindrical Gears
Super-Precision Single-Flank Gear Testing Machine (77-DET-118) (A) **F 126**

Cylindrical Inhomogeneity
On the Tensile and Compressive Strength of Solids Weakened (strengthened) by an Inhomogeneity (77-WA/APM-4) (A) **Je 111**

Cylindrical Mirrors
Heat Pipe Mirrors for High Power Lasers (78-HT-60) (A) **O 98**

Cylindrical Pile
Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) (A) **Ja 115**

Cylindrical Pressure Vessels
Analysis of Edge-Beam Reinforced Layered Cylindrical Pressure Vessels (78-PVP-103) (A) **N 124**

Cylindrical Roller Bearing
The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearings (77-Lub-8) (A) **F 133**

Cylindrical Shells
Buckling of Cylindrical Shells Subjected to Nonuniform Axial Loads (77-WA/APM-12) (A) **Jl 97**

Closed-End Cylindrical Shell Under Line Load Along a Generator (78-PVP-85) (A) **N 122**

Response of a Finite Thin Cylindrical Shell of Graphite Materials to a Thermal Shock (77-WA/HT-9) (A) **Ap 102**

Seismic Design Study on Cantilever Cylindrical Shells (77-PVP-14) (A) **Ja 107**

Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) (A) **O 101**

Cylindrical Vessel Inlet Nozzle
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) (A) **O 102**

Cylindrically-Wound-Yarn-Package
On the Thermal Effects in a Wrap Beam (A Wound-Yarn-Package) (77-Tex-3) (A) **F 132**

Cyrus, J. D. Propulsion System Considerations for the Subsonic V/STOL (78-GT-57) (A) **Jl 94**

D

D'Alembert's Principle
Dynamic Analysis of Spatial Mechanisms Using Fuel Suc-

cessive Screw Method and D'Alembert's Principle (78-DET-22) (A) **D 90**

DCB Testing
Shear Fracture Propagation by DCB Testing (77-Pet-32) (A) **Ja 101**

D'Souza, A. F. Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) (A) **F 129**

Dagalakis, N. G. Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) (A) **Mr 95**

Dahlman, O. *(author)* Monitoring Underground Nuclear Explosions (CB) **Ji 100**

Dalcher, A. W. DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) (A) **Je 101**

Dally, J. W. A Photoelastic Evaluation of the Method of Measuring Crack Arrest Toughness with a Tapered DCB Specimen (78-Mat-15) (A) **O 100**

Dalmaz, C. Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) (A) **F 132**

Damage Accumulation
A Linear Unaxial Damage Accumulation Law for Creep-Fatigue Interaction (78-PVP-63) (A) **N 119**

Damage Concepts
Application of Damage Concepts to Predict Creep-Fatigue Failures (78-PVP-26) (A) **O 104**

Damage Tolerance Concepts
Analysis of a Canister Closure Design by Damage Tolerance Concepts (78-PVP-108) (A) **N 125**

Damerell, P. S. Flow in a Toroidal Thermosyphon with Angular Displacement of Heated and Cooled Sections (78-HT-44) (A) **O 97**

Damped Bearings
Transient Response of a Rotor in Damped Bearings (77-DET-21) (A) **Ja 109**

Damped Circular Ring
The Forced Vibration of a Three-Layer Damped Circular Ring (77-DET-154) (A) **F 129**

Damped Floating Platforms
Dynamically Damped Floating (77-Pet-58) (A) **Ja 104**

Damped Supports
The Stability of an Asymmetric Rotor in Damped Supports (78-GT-172) (A) **Ag 117**
Steady-State Unbalance Response of a Three Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) (A) **F 124**

Damped Vibration
Extensional and Shear Strain Damping Mechanisms in Constrained Layer Damped Vibration (77-DET-74) (A) **Ja 114**

Damped Vibration Absorbers
Alternative Tuned Absorbers for Steady-State Vibration Control of Tall Structures (77-DET-84) (A) **Ja 115**

Damper Forces
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) (A) **Ja 109**

Damper Loss
A Design Point Correlation for Losses due to Part-Span Dampers on Transonic Rotors (78-GT-153) (A) **Ag 115**

Dampers
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) (A) **Ja 110**
Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) (A) **Ja 108**
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) (A) **Mr 86**
An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) (A) **Ja 110**
Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) (A) **F 123**
Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) (A) **Ja 109**

Damping
The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) (A) **Ja 109**
The Dynamic Characteristics of O-Rings (77-DET-27) (A) **Ja 110**
Elementary Synthesis of Damping in Conjunction with Planar Mechanisms (78-DET-49) (A) **D 92**
An Example of Additive Damping as a Cost Savings Alternative to Redesign (77-WA/GT-2) (A) **Ap 100**
Experiments on Buckling and Vibration of Superconducting Coils (77-WA/APM-28) (A) **Ji 99**
Hunting Stability of the Three-Axle Locomotive Truck (78-RT-6) (A) **O 91**
Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) (A) **Mr 85**
Vibration and Noise Reduction of Beams and Plates by Use of Boundary Damping and Stiffness (77-DET-155) (A) **F 129**

Damping Factor
A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) (A) **Ja 109**

Daniel, K. J. Optical Property Measurements for Suspensions of Unicellular Algae (78-HT-14) (A) **O 93**

Dao, K. C. A Computational Model for Fracture of Pressure Vessel Steel Derived from Experimental Data (78-PVP-92) (A) **N 122**

Darlow, M. S. Critical Speeds and Response of a Large Vertical Pump (78-PVP-34) (A) **O 105**; The Dynamic Characteristics of O-Rings (77-DET-27) (A) **Ja 110**

Daskavitz, M. J. Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) (A) **Ji 89**

Data Acquisition
Environmental Monitoring Data Acquisition Computer System (EMD-ACS) (77-WA/APC-3) (A) **My 102**
Ultrasonic Data Acquisition, Analysis, and Display by Minicomputer Aided Techniques (77-PVP-45) (A) **Ja 108**

Data Analysis
Aerodynamic Development of Stages for Industrial Centrifugal Compressors. Part 1: Testing Requirements and Equipment—Immediate Experimental Evidence. Part 2: Test Data Analysis, Correlation and Use (78-GT-5) (A) **Ji 87**
Power Plant Productivity Trends and Improvement Possibilities (77-JPGC-Pwr-11) (A) **Mr 89**

Data Dependent Systems
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) (A) **Je 107**

Data Gathering System
Test Procedures for Establishing the Altitude Performance of Turbofan Engines to Validate Contractual Guarantees (78-GT-42) (A) **Ji 92**

Data Optimization
Application of Goal Programming to Machinability Data Optimization (77-DET-19) (A) **Ja 108**

Data Organization
A Hierarchal Data Organization-Facilitating Interactive Three-Dimensional Design (77-DET-108) (A) **F 125**

Data Processing
Computer-Generated Cryptography for Data Security (BTR) **Mr 54**
Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**
Low-Cost Computing System (BTR) **Ap 52**
Military Engine Usage Monitoring Developments in the United Kingdom (78-GT-65) (A) **Ji 95**

Data Transmission Link
Data Link Uses Fiber Optic Cable (BTR) **O 49**

Datner, B. Analysis of Roller/Ball Bearing Vibrations (77-WA/DE-5) (A) **Mr 94**

Datseris, P. Optimum Synthesis of Mechanisms Using Heuristics for Decomposition and Search (78-DET-5) (A) **D 88**

Datta, S. K. A Self-Consistent Approach to Multiple Scattering by Elastic Ellipsoidal Inclusions (77-WA/APM-25) (A) **Ji '8**

Daunton, N. G. Vestibular Function Research Aboard Spacelab (78-ENAs-25) (A) **N 112**

Davenport, R. J. Water Electrolysis System: H_2 and O_2 Generation (78-ENAs-3) (A) **N 110**

Davis, D. A. Experimental Evaluation and Analysis of Thermistor Probes for Recording Clinical In Vivo Temperatures (77-WA/HT-41) (A) **My 100**

Davis, L. K. Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**

Davis, R. A. A Design Procedure for Printed Wiring Boards (77-DET-110) (A) **F 125**

Davis, R. L. Finite Element Analysis of Bourdon Tubes (79-PVP-67) (A) **N 119**

Davis, R. W. Numerical Solutions for Laminar Orifice Flow (77-WA/FE-13) (A) **Ap 95**

Davis, S. H. The Dependence of the CO_2 Removal Efficiency of LiOH Humidity and Mesh Size (78-ENAs-5) (A) **N 110**

Davis, W. J. A Generalized Decomposition Procedure and its Application to Engineering Design (77-DET-62) (A) **Ja 113**

Day, J. P. A Study of Chemical Reactivity in Ceramic Heat Exchangers (78-GT-118) (A) **Ag 110**

Day, W. H. Development of a Water-Cooled Gas Turbine (78-GT-72) (A) **Ji 96**; Evaluation of a Water-Cooled Gas Turbine Combined Cycle Plant (78-GT-77) (A) **Ag 105**; The Utilization of High-Temperature Gas Turbines in Integrated Coal-Derived Fuel Combined Cycles (77-WA/Ener-12) (A) **My 95**

Dayan, J. Nonlinear Digital Simulation and Minimum Fuel Control of a Jet Type Gas Turbine Power Generating Unit (78-GT-43) (A) **Ji 92**

DeBear, W. S. Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) (A) **Mr 90**

De Choudhury, P. Coupling Selection for Synchronous Motor Drive Systems (77-DET-131) (A) **F 127**

DeCrescente, M. A. Hot Corrosion of Gas Turbine Components (78-GT-82) (A) **Ag 106**

DeGreef, J. L. Operating Experience on Residual Fuel Oil with A W251 Combustion Turbine (78-GT-104) (A) **Ag 108**

DeRocker, D. Never Too Old for Another Gear Idea! **Mr 20**

De Ruyck, J. An Axial Compressor End-Wall Boundary Layer Calculation Method (78-GT-81) (A) **Ag 105**; The Three-Dimensional Flow and Blade Wake in an Axial Plane Downstream of an Axial Compressor Rotor (78-GT-66) (A) **Ji 95**

De Sa, S. Symmetrical Algebraic Motions in the Plane (78-DET-40) (A) **D 92**

DeSilvia, S. M. E. Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) (A) **Ja 111**

DeVillier, M., Jr. Propulsion System Considerations for the Subsonic V/STOL (78-GT-57) (A) **Ji 94**

DeVries, W. R. Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) (A) **Je 106**; An Orthmorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) (A) **Je 107**

DeVor, R. E. An Experimental Strategy for Designing Tool Life Experiments (77-WA/Prod-24) (A) **Je 106**

DeWitt, D. P. Measurements of Temperature Distributions at Electrosurgical Dispersive Electrode Sites (77-WA/HT-47) (A) **My 100**

Dead Weight Spans
Reduction of Allowable Seismic or Weight Piping Span Length Due to Presence of a Concentrated Mass (78-PVP-19) (A) **O 104**

Dean, G. W. Test Procedures for Establishing the Altitude Performance of Turbofan Engines to Validate Contractural Guarantees (78-GT-42) (A) **Ji 92**

Dean, J. K. Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) (A) **Ja 101**

Dean, R. C., Jr. Elections to Fellow Grade **Ap 90**; Technical Innovation USA **N 22**

Deblon, B. Full Load Tests of the 80-MW Gas Turbine V 93.2 Using a Water Brake (78-GT-68) (A) **Ji 95**

Decay Behavior
On Prediction and Unified Correlation for Decay of Vertical Buoyant Jets (78-HT-21) (A) **O 94**

Decomposition
Optimum Synthesis of Mechanisms Using Heruistics for Decomposition and Search (78-DET-5) (A) **D 88**

Decomposition Procedure
A Generalized Decomposition Procedure and its Application to Engineering Design (77-DET-62) (A) **Ja 113**

Decompression Computer
Decometer: A Microprocessor-Based Decompression Computer for Divers (77-WA/Oce-8) (A) **Ap 93**

Decompression Management
A Specialized Microprocessor System for Decompression Management of Deep Diving (77-WA/Oce-7) (A) **Ap 93**

Decoupling Criteria
Decoupling Criteria for Seismic Analysis of Nuclear Power Plant Systems (78-PVP-27) (A) **O 104**

Deep Diving
Decometer: A Microprocessor-Based Decompression Computer for Divers (77-WA/Oce-8) (A) **Ap 93**
A Specialized Microprocessor System for Decompression Management of Deep Diving (77-WA/Oce-7) (A) **Ap 93**

Deep-Hole Drilling Bits
Cavijet® Augmented Deep-Hole Drilling Bits (77-Pet-54) (A) **Ja 104**
Deep-Hole Machining
Optimal Design of Multi-Edge Cutting Tools for BTA Deep-Hole Machining (78-DET-66) (A) **D 94**
Deep Sea Drilling Project
Glomar Challenger's Deep Water Reentry Cone/Dual Casing Hanger System (77-Pet-75) (A) **Ja 106**
Deep-Water Areas
Deep-Water Oil (BTR) **O 50**
Deep-Water Drilling
Challenges of Deep-Water Drilling (BTR) **S 49**
Deep Water Position
Deep Water Position Measuring System for Dynamically Positioned Ships (77-Pet-39) (A) **Ja 102**
Deep Water Reentry Hardware
Glomar Challenger's Deep Water Reentry Cone/Dual Casing Hanger System (77-Pet-75) (A) **Ja 106**
Defective Products
Machining Economics and Tool Life Variation: Part 1—Basic Considerations and their Practical Implications (77-WA/Prod-12) (A) **Je 104**
Deflection
A Simple Dynamic Model for Stimulating Draft-Gear Behavior in Rail-Car Impacts (78-RT-2) (A) **O 90**
Deflection Measurement
J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) (A) **O 99**
Deformation
Analysis of Closely Spaced Double Tubesheets Under Mechanical and Thermal Loadings (77-JPGC-NE-21) (A) **Mr 92**
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) (A) **S 72**
On the Changing Order of Singularity at a Crack Tip (77-WA/APM-15) (A) **Ji 98**
Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/Prod-29) (A) **Je 107**
A High-Order Theory of Plate Deformation—Part 1: Homogeneous Plates (77-WA/APM-23) (A) **Ji 98**; Part 2: Laminated Plates (77-WA/APM-24) (A) **Ji 98**
A Numerical Method for Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) (A) **Je 107**
Real-Time Monitoring of Crustal Deformations (BTR) **O 54**
Stability of Elastically Restrained Timoshenko Cantilevers With Attached Masses Subjected to a Follower Force (77-WA/APM-7) (A) **Ji 97**
Deformations
Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) (A) **Je 107**
Degli Esposti, P. L. Active Thermal Control Subsystem Development (78-ENAs-6) (A) **N 110**
Degree Graduates
Higher Starting Salaries for May UMC Grads (EN) **Ap 74**
Degree Program
Master's Degree Program to Cross Disciplinary Lines (EN) **Mr 65**
Degree Programs
Gas Turbine Education and Research Programs in German Universities (78-GT-171) (A) **Ag 117**
Individually Tailored B.S. Degree (EN) **Ji 62**
Professional Education (C) **N 58**
Degree Studies
Update on ICS (EN) **Ja 78**
Dekeyser, I. Triple-Correlations Closure Models in an Asymmetric Heated Plane-Jet with Negative Production (78-HT-1) (A) **O 92**
Deksnis, E. B. Seismic Analysis of the Main Steam System for 600-MWe CANDU Stations (78-PVP-87) (A) **N 121**
Delaney, E. F. One Manufacturer's View of Gas Turbine Service (78-GT-49) (A) **Ji 93**
Delta Ferrite Content
Significance of Delta Ferrite Content to Fatigue Crack Growth Resistance of Austenitic Stainless Steel Weld Deposits (78-PVP-9) (A) **O 102**
Delvin, S. A. Fracture Mechanics Analysis of JAERI Model Pressure Vessel Test (78-PVP-91) (A) **N 122**
Demeter, J. J. Combustion of Coal-Oil Slurry in a 100-HP Firetube Boiler (77-WA/Fu-5) (A) **My 93**
Demineralizers
An Evaluation of New Filter/Demineralizer Precoat Materials (78-JPGC-NE-16) (A) **D 86**
Demmon, T. R. On Elasto-Plastic Column Design (77-WA/DE-17) (A) **Mr 95**
Demonstration Engine
20 HP Mini-RPV Demonstrator Engine Programs (78-GT-200) (A) **S 76**
Denatured Fuel
Use of Thorium in Power Reactors (77-JPGC-NE-24) (A) **Mr 92**
Denio, L. L. Control of Nuclear Fuel Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**
Denison, E. B. Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) (A) **Ja 106**
Density Effect
A Pulsed Homopolar Machine with Superconducting Field Coils (77-WA/HT-35) (A) **My 99**
Density-Stratified Fluid
Double-Diffusive Instability in a Density-Stratified Fluid Along a Heated Inclined Wall (78-HT-43) (A) **O 97**
Dent, J. R. Electronic Controls of Gas Turbine Engines in Fighting Vehicles (78-GT-48) (A) **Ji 93**
Dental Occlusion
Kinematics of Jaw Growth (77-WA/Bio-15) (A) **Ap 99**
Department of Energy
Conservation: Cooperation vs. Coercion (WW) **F 71**
Possibilities for Solar-Thermal (ES) **Ag 23**
Pushing Down the Cost of Photovoltaics (ES) **Ji 23**
Stirling Engine Development (BTR) **Ji 49**
Department of Energy (DOE)
Another Commitment to Coal Gasification (ES) **S 21**
Carter O.K.'s Energy Accelerator (NB) **Ap 71**
DOE Finds Office Buildings Could Cut Energy Use 22 Percent (NR) **Ag 72**
DOE's 1978 Budget—Before It Goes Through the Mill (WW) **Mr 70**
Electric Vehicle Outlook (BTR) **Je 60**
ESCOE Advises DOE on Energy Programs (NR) **O 64**
ESCOE Offers Job Opportunities (NR) **Ap 70**
Free Enterprise is Best! (ES) **O 47**
Fuel Cell Power Plants Studied (BTR) **Ag 60**
Funding Synthetic Fuel Programs (ES) **Ap 20**
Geothermal in New Jersey (NB) **O 68**
More Money for Solar (ES) **O 47**
Solar Cells Now Power Weather Stations (BTR) **Ap 54**
Solar Simulator Helping to Set Standards (BTR) **O 48**
Student DOE Program (EN) **S 61**
Student Research at ORNL (EN) **Je 76**
Studying Nuclear Waste Storage (EN) **O 69**
Transportation Energy Conservation Data Book (CB) **My 105**
Vehicle Performance Standards (NB) **Ag 75**
Department of Transportation (DOT)
DOT Contracts (EN) **Je 76**
Depooter, K. The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (A) **Ap 93**
Depth Requirements
An Analytical Approach for Establsihing Case Depth Requirements in Carburized Gears (77-DET-152) (A) **F 129**
Derbalian, G. Mechanical Analysis of Steam Generator Tube Denting (78-NE-5) (A) **N 115**
Derby, S. Displacement Analysis of a Spatial 7R Mechanism—A Generalized Lobster's Arm (78-DET-10) (A) **D 89**
Desai, K. J. Direct Blade Force Measurements in Transonic Cascade Flows (78-GT-45) (A) **Ji 93**
Desai, P. V. Design and Dynamic Performance of a Hydromechanical Impact Breaker (77-WA/Fics-3) (A) **Ap 97**
Desalination System
Massive Desalination System for Saudi City (BTR) **Ag 61**
Deshpande, A. S. "CANWEL"—A Canadian System for Domestic Waste Management and Energy Reclamation (77-WA/Fu-2) (A) **My 92**
Desiccant Drying Beds
Performance of Rotary Bed Silica Gel Solid Desiccant Dryers (78-HT-36) (A) **O 95**
Design Aids
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) (A) **Ag 106**
Design Algorithms
Design Algorithms for Compound Gear Train Rotors (78-DET-62) (A) **D 93**
Design Analysis
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) (A) **S 72**
Design Application
Application of the Regeneration Spectrum to the Design of Machine Tool Chatter Control Systems (77-WA/Aut-8) (A) **Je 103**
Design Aspects
Requirements for Educational Gas Turbines (78-GT-76) (A) **Ag 105**
Design Charts
Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Scored-Pad Thrust Bearing (77-Lub-24) (A) **Mr 87**
Design Competition
Design Competition Brochure (EN) **My 75**
Design Concepts
ECLSS Definition for a Low-Cost Space Construction Base (78-ENAs-15) (A) **N 112**
Design Conditions
A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) (A) **Ag 113**
Design Considerations
Design Considerations for Surface-Controlled Subsurface Safety Valve Systems (77-Pet-45) (A) **Ja 103**
Design Considerations in Mechanical Face Seals for Improved Performance—Part 1 (77-WA/Lub-3) (A) **Ji 96**; Part 2 (77-WA/Lub-4) (A) **Ji 96**
Design Contact Ratio
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) (A) **Ja 113**
Design Contest
Best Designs in Energy Conversion Win Awards (NR) **F 66**
Plastics Design Contest (EN) **Ap 76**
Design Corrections
Testing of FFTF Fuel Handling Equipment (77-WA/NE-9) (A) **Je 101**
Design Criteria
Design Considerations for Future Heat Recovery Boilers Aboard Naval Vessels (78-GT-162) (A) **Ag 105**
Development of Structural Design Criteria for Highly Irradiated Core Components (78-PVP-78) (A) **N 121**
A High-Effectiveness Regenerator Design Concept (78-GT-78) (A) **Ag 105**
Predicting Sonic Vibration in Cross Flow Heat Exchangers—Experience and Model Testing (77-WA/DE-28) (A) **Mr 96**
The Role of the Recuperator in High Performance Gas Turbine Applications (78-GT-46) (A) **Ji 92**
Thermal Design Criteria for Solar Hot Water Systems in Tropical Climates (78-HT-37) (A) **O 95**
Design Data
Handbook of Simplified Solid-State Circuit Design (CB) **Ag 119**
Design Development
Developments in the Design of Shell-and-Tube Condensers (77-WA/HT-24) (A) **Ap 104**
Electronic Controls of Gas Turbine Engines in Fighting Vehicles (78-GT-48) (A) **Ji 93**
Design Effects
OBE Design Effects on Nuclear Power Plant Pressure Vessel (78-PVP-14) (A) **O 103**
Design Engineering
Accurately Characterizing a Measured Change in Configuration (78-DET-50) (A) **D 93**
Algebraic Trochoids—Classification, Transformations, and Certain Properties (78-DET-57) (A) **D 93**
Alternative Closed-Cycle Gas Turbine System Design Considerations for Ship Propulsion Applications (78-GT-18) (A) **Ji 89**
An Alternative to Euclid's Algorithm (78-DET-41) (A) **D 92**
Analysis of Pneumatically Driven Double-Acting Reciprocating Pumps (78-DE-19) (A) **O 91**
Analysis of Roller/Ball Bearing Vibrations (77-WA/DE-5) (A) **Mr 94**
Analysis and Simulation of Planar Mechanism Systems Using Bond Graphs (78-DET-2) (A) **D 87**
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) (A) **S 72**
Anatomy of Research Projects—Objective, Organization, Delivery (78-DET-72) (A) **D 94**
Application of a Finite Element Computer Program for Investigating Failure Mechanisms in Military Ammunition (77-WA/DE-20) (A) **Mr 96**
The Application of Low Cost Manufacturing Technology to a Turbine Gas Generator (78-GT-202) (A) **S 77**
Badger's Energy Commitments (ES) **N 20**

Bearing Compartment Seal Systems for Turbomachinery in Direct-Cycle HTGR Power Plants (78-GT-38) (A) **Ji 91**

Bevel Gears at 203 m/s (40,000 fpm) (77-DET-178) (A) **F 131**

CAD/CAM System Slashes Design Time (BTR) **N 68**

Cam Mechanism Accuracy (77-WA/DE-19) (A) **Mr 95**

A Car Rocking Mechanism (77-WA/RT-11) (A) **Mr 85**

A Case Study for Bionics: The Space Toggle (78-DET-47) (A) **D 92**

On Certain Least-Squares Synthesis Methods Misconceptions (78-DET-11) (A) **D 88**

Chebychev Approximations of Finite Point Sets with Application of Planar Kinematic Synthesis (78-DET-25) (A) **D 90**

Chebychev Approximations of Spatial Point Sets Using Spheres and Planes (78-DET-4) (A) **D 88**

A Closed-Form Numerical Algorithm for the Periodic Response of High-Speed Elastic Linkages (78-DET-15) (A) **D 89**

Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) (A) **Ja 111**

A Compendium of Line-Symmetric Four-Bars (78-DET-14) (A) **D 89**

Components to Meet UHV Demands (ES) **N 21**

A Computationally Efficient Numerical Algorithm for the Transient Response of High-Speed Elastic Linkages (78-DET-54) (A) **D 93**

Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) (A) **S 74**

Computer-Aided Synthesis of a Two-Degree-of-Freedom Planar Linkage for Function Generation (78-DET-30) (A) **D 90**

A Computer Program for the Design of Turbomachinery Blades (78-GT-36) (A) **Ji 91**

Confined and Unconfined Elastomer Dies for Metal Bending (78-DE-11) (A) **S 72**

Control of Clearance Effects in Mechanisms (77-WA/DE-2) (A) **Mr 93**

Conversion of Gas Pipeline to Liquids Service (77-Pet-18) (A) **Ja 100**

Cooling it with Sun Power (BTR) **Mr 53**

DREB: A New Tool for Rolling Bearing Performance Simulation (78-DE-15) (A) **S 73**

Decision-Making for Safety and Health **Je 81**

Decoupling Criteria for Seismic Analysis of Nuclear Power Plant Systems (78-PVP-27) (A) **O 104**

Degree of the Input-Output Equations of Certain Geared Five-Bar Mechanisms (78-DET-27) (A) **D 90**

Design Algorithms for Compound Gear Train Ratios (78-DET-62) (A) **D 93**

Design Analysis of an Epicyclic Rotary Pump Mechanism (78-DET-46) (A) **D 92**

Design and Calculated Performance and Cost of the ECAS Phase II Open Cycle MHD Power Generation System (77-WA/Ener-5) (A) **My 94**

Design and Development of a Low Emission Combustor for a Car Gas Turbine (78-GT-155) (A) **Ag 115**

Design Charts for Disk Cams with Reciprocating Radial Roller Followers (78-DET-36) (A) **D 91**

Design Features and Performance Characteristics of a Low Horsepower Multipurpose Pump (77-Pet-64) (A) **Ja 105**

Design of a Family of Packages for A 7500-kW Industrial Gas Turbine (78-GT-37) (A) **Ji 91**

Design of a Load Simulator for the Dynamic Evaluation of Prosthetic Knee Joints (78-DET-59) (A) **D 94**

Design of an Elastic Wind Tunnel Model of a Tall Office Building Using a Finite Element Computer Code (77-WA/DE-6) (A) **Mr 94**

Design of High-Efficiency Flat Plate Solar Collectors for Space and Water Heating (78-DE-7) (A) **S 73**

Designing for Home Energy Conservation (EN) **Ag 76**

Determination of the Critical Operating Speeds of Planar Mechanisms by the Finite Element Method Using Planar Actual Line Elements and Lumped Mass Systems (78-DET-37) (A) **D 91**

On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) (A) **Mr 93**

Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) (A) **Je 106**

Deplacement Analysis of RRGRR Mechanism (78-DET-8) (A) **D 88**

Displacement Analysis of a Spatial 7R Mechanism—A Generalized Lobster's Arm (78-DET-10) (A) **D 89**

Displacement Analysis of Spatial 7R Mechanisms Suitable for Constant-Velocity Transmission Between Parallel Shafts (78-DET-9) (A) **D 88**

Dynamic Accuracy of Hybrid Profiling Mechanisms in Cam Manufacturing (77-WA/DE-3) (A) **Mr 93**

Dynamic Analysis of a Pressurized Water Reactor Coolant System Subjected to Postulated Loss-of-Coolant Accident Transient Loads (77-WA/DE-23) (A) **Mr 96**

Dynamic Analysis of Spatial Mechanisms Using Fuel Successive Screw Method and D'Alembert's Principle (78-DET-22) (A) **D 90**

Dynamic Response Characteristics of Contact Separation in a Preloaded Mechanical Joint (78-DET-48) (A) **D 92**

An Economic Guideline for the Design of Programmable Assembly Machines (77-WA/Aut-2) (A) **Je 102**

The Elastic-Dynamic Behavior of a Counterweighted Rocker Link with an Overhanging Endmass in a Four-Bar Linkage Part I: Theory (78-DET-23) (A) **D 90**; Part II: Application and Experiment (78-DET-24) (A) **D 90**

On Elasto-Plastic Column Design (77-WA/DE-17) (A) **Mr 95**

Elastodynamics of Planar Mechanisms Using Planar Actual Finite Line Elements, Lumped Mass Systems Matrix-Exponential Method (78-DET-26) (A) **D 89**

An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) (A) **Mr 94**

Elementary Synthesis of Damping in Conjunction with planar Mechanisms (78-DET-49) (A) **D 92**

Elimination of Branch, Grashof, and Order Defects in Path-Angle Generation and Function Generation Synthesis (78-DET-16) (A) **D 89**

Employer's Expectation of Test Engineers (77-WA/DE-29) (A) **Mr 96**

On the Existence of Circle-Point and Center Point Circles for Three Precision-Point-Dyad Synthesis (78-DET-91) (A) **D 91**

Experimental Investigation of Simulated Helicopter Fuel Cell Impact Phenomenon (78-DET-79) (A) **D 95**

Experimental Kinematic Analysis and a New Technique of Synthesis of an Elastic Four Bar Chain (78-DET-63) (A) **D 94**

An Experimental Strategy for Designing Tool Life Experiments (77-WA/Prod-24) (A) **Je 106**

Explosion Welding **My 28**

Fabrication and Test of a 70 K Heat Radiator (78-ENAs-16) (A) **N 111**

Flexural Vibrations of Rotating Electromagnetic Shields (77-WA/DE-15) (A) **Mr 95**

Floating Factories for the Amazon (BTR) **Mr 50**

The Formal Tradeoff Study as a Mechanical Design Tool (78-DE-4) (A) **S 72**

Free-Wheeling Flywheel (BTR) **Ji 47**

General Forms of Index Ratios and Generation of Variable Index Ratios by Series-Connected Geneva Mechanisms with Single or Multiple Driving Pins (78-DET-28) (A) **D 90**

Generalized Force Curve Shapes for Structural Synthesis of Joint Torque Systems to Produce a Desired Dynamic Motion Time Response of a 4R-Bar (78-DET-39) (A) **D 92**

Geometric Characteristics Design and Manufacturing of Noncircular Gears (77-DET-177) (A) **F 131**

Graphics Display System Speeds Design (BTR) **Ja 53**

Grid Selection and Refinement Procedures in Finite Element Analysis (78-DE-21) (A) **O 92**

A Hierarchy of Methods for Analysis of Elastic Mechaniems with Design Applications (78-DET-56) (A) **D 92**

A High Temperature Turbine Research Module (77-GT-73) (A) **Ag 105**

Higher Fuel Efficiency for EMD Diesel Locomotives (78-RT-4) (A) **O 90**

Higher Order, Planar Tangent-Line Envelope Curvature Theory (78-DET-21) (A) **D 89**

How to Design and Utilize Flexible Shafts in Products (78-DE-22) (A) **S 73**

Human Factors in Machine Design (78-DET-68) (A) **D 94**

Human Performance Reliability—Its Measurement and Impact on System Reliability (78-DE-17) (A) **S 74**

Improving Design Problem Representation (78-DET-73) (A) **D 95**

The Influence of Market Research on Product Design and Materials Selection (78-DE-3) (A) **S 72**

Information Methods: For Design and Construction (CB) **Ja 117**

Interactive Modeling and Analysis of Open or Closed Loop Dynamic Systems with Redundant Actuators (78-DET-42) (A) **D 92**

Interface Pressure Distribution in a Bolt-Flange Assembly (77-WA/DE-11) (A) **Mr 94**

JT10D Engine 25,000—35,000-lb Thrust Range (BTR) **O 51**

Joint Displacements in Linkage Synthesis Solutions (78-DET-43) (A) **D 92**

Kinematic Analysis of a Seven-Link Mechanism (78-DET-55) (A) **D 92**

The Kinematic and Force Analysis of Upper Extremity-Orthosis Systems (78-DET-51) (A) **D 93**

Kinematics of an Epicyclic Gear Pump (78-DET-13) (A) **D 88**

Limit Positions of Spatial Linkages via Connectivity Sum Reduction (78-DET-12) (A) **D 88**

Load Sequences for Laboratory Simulation of Flight-by-Flight Stress Spectra (77-WA/DE-25) (A) **Mr 96**

Magnetohydrodynamic Solar Energy Converter (78-DET-70) (A) **D 94**

Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) (A) **Mr 94**

Mechanical Reliability Confidence Limits (77-WA/DE-12) (A) **Mr 94**

Mechanics of Form Closure (78-DET-32) (A) **D 90**

Mechanism Case Studies IV (78-DET-19) (A) **D 89**

Mechanism Optimization Via Optimality Criterion Techniques (78-DET-53) (A) **D 91**

Microprocessors Capture Limelight at Silver Jubilee **Je 82**

Microprocessors Featured at Design Engineering Conference and Show **Mr 76**

Model Formulation of Complex Mechanisms With Multiple Inputs: Part I—Geometry (77-WA/DE-9) (A) **Mr 94**; Part II—The Dynamic Model (77-WA/DE-10) (A) **Mr 94**

Molten-Carbonate CO_2 Concentrator: Preliminary Experiments (78-ENAs-2) (A) **N 110**

Multiparametric Optimization of Four-Bar Linkages (78-DET-7) (A) **D 87**

Multistage Geared Geneva Mechanism (78-DET-18) (A) **D 89**

A New Approach to the Design of Wet-Gas Pipelines (77-Pet-14) (A) **Ja 100**

A New Approximate Approach for Elastic Body Contact in Roller Bearings (78-DE-18) (A) **S 74**

A New Class of Spool Valves with Built-In Dampers (78-DE-6) (A) **S 73**

A New Interpretation for the Dynamic Phenomena Associated with Geneva Mechanisms (78-DET-38) (A) **D 91**

Noise Radiated from Hydraulic Circuits (78-DE-23) (A) **O 92**

Non-Linear Lateral Mechanical Response of Pressurized Water Reactor Fuel Assemblies (77-WA/DE-18) (A) **Mr 95**

One Manufacturer's View of Gas Turbine Service (78-GT-49) (A) **Ji 93**

Optimal Design of Multi-Edge Cutting Tools for BTA Deep-Hole Machining (78-DET-66) (A) **D 94**

Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) (A) **Ja 111**

Optimization of Crank-and-Rocker Linkages with Size and Transmission Constraints (78-DET-6) (A) **D 87**

Optimum Design of Uniform-Section Disk Springs Under Various Constraints (77-WA/DE-22) (A) **Mr 96**

Optimum Synthesis of Mechanisms Using Heuristics for Decomposition and Search (78-DET-5) (A) **D 88**

Partial Dynamic State Synthesis by Use of Mass Parameters in a System Coupler Link (78-DET-61) (A) **D 93**

Pattern Control Actuator Design for Electronically Controlled Sewing Machine (78-DE-13) (A) **S 74**

Pattern Control System Requirements for an Electronic Consumer Sewing Machine (78-DE-12) (A) **S 72**

Performance Criteria for High-Speed Crank-and-Rocker Linkages Part I: Plane Crank-and-Rocker Linkages (78-DET-33) (A) **D 90**; Part II: Spherical Crank-and-Rocker Linkages (78-DET-34) (A) **D 91**

Pile Foundations in Frozen Soils (77-Pet-79) (A) **Ja 106**

Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) (A) **Ji 89**

Predicting Acoustical Noise Generation in Complex Mechanical Systems (78-DET-60) (A) **D 93**

Predicting Sonic Vibration in Cross Flow Heat Exchangers—Experience and Model Testing (77-WA/DE-28) (A) **Mr 96**

Program to Establish LMFBR Commercialization (77-JPGC-NE-23) (A) **Mr 92**

Radial Compressor Development as Dictated by the

Requirements of Large Turbochargers (78-GT-187) (A) **S 75**
Rapid Algorithms for Kinematic and Dynamic Analysis of Planar Rigid Linkages with Revolute Joints (78-DET-64) (A) **D 94**
Reducing Costs With Coordinated Advanced Design and Production Techniques (78-DE-9) (A) **S 72**
Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) (A) **Mr 95**
Research and Development Decisions Through the Use of Present Value Analysis (78-DE-2) (A) **S 72**
September Statements (C) **F 52**
A Servo Control System Design for Electronic Pattern Control in a Consumer Sewing Machine (78-DE-14) (A) **S 74**
A Simple Test of the Effectiveness of Stress Relief Annealing Spring Materials (77-WA/DE-21) (A) **Mr 95**
Simulation—A Key to Improved Design (A Progress Report on a Case Study) (78-DE-10) (A) **S 73**
Slider-Crank Mechanism with a Flexibly Attached Slider—Optimum Synthesis Via Geometric Programming (78-DET-31) (A) **D 90**
Slip Ring Eliminator, A Clock-Spring Approach (78-DET-3) (A) **D 87**
Special Engineering Problems of TFTR (77-WA/NE-4) (A) **Je 100**
Spring Fatique Recommended Design Stresses (78-DE-5) (A) **S 73**
Storoidal Motion—A New Class of Cam Profiles (78-DET-20) (A) **D 89**
Stress Analysis and Maximization of Energy Density for a Magnetically Suspended Flywheel (77-WA/DE-24) (A) **Mr 96**
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) (A) **Mr 95**
Stress Redistribution for the Multiring Flywheel (77-WA/DE-26) (A) **Mr 96**
Structural Analysis of Kinematic Chains and Mechanisms Based on Matrix Representation (78-DET-29) (A) **D 90**
Success of a Big Flop (BTR) **Mr 52**
A Survey of Cam Manufacture Methods (78-DET-65) (A) **D 94**
Symmetrical Algebraic Motions in the Plane (78-DET-40) (A) **D 92**
Synthesis is of the Four-Bar Mechanisms for the Generation of Symmetrical "V" Shaped Coupler Curves of Specified Flank Angles for Linkage-Geneva Mechanisms (78-DET-52) (A) **D 91**
Synthesis of the Plane Four-Bar Mechanism for Torque Generation, and Application to a Case Study for the Design of a New Balancing Mechanism for Rotary Top Brush in Power Wax Car Washing Machines (78-DET-71) (A) **D 94**
Technology Transfer in the Design of Adjustable Linkages (78-DET-67) (A) **D 94**
Technology Transfer in the Determination of Torque Characteristics of Instrument Ball Bearings at High Speeds with Radial and Axial Loads (78-DET-69) (A) **D 94**
Thermal Response of Slabs Subjected to Nonsymmetric Convective Heat Transfer (78-DE-8) (A) **S 72**
Thermoelectric Generators for Solar Energy Conversions (78-DET-75) (A) **D 95**
Torsion of Bars of Solid Polygonal and Hollowed Polygonal-Circular Cross Sections (77-WA/DE-27) (A) **Mr 96**
On the Torsional Vibration of Branched Systems Using Extended Transfer Matrix Method (77-WA/DE-4) (A) **Mr 93**
Transferring Technology to Solve Energy Problems (78-DET-76) (A) **D 95**
Tropological Reaction Force Analysis (78-DET-58) (A) **D 93**
Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) (A) **Ja 106**
Vector Loop Analysis of Wankel Compressors or Engines (78-DET-1) (A) **D 87**
On Velocity Fluctuation in Skew Four-Bar Mechanisms (78-DET-45) (A) **D 92**
Vibration of Beams Carrying Discrete Dampers and Masses (77-WA/DE-7) (A) **Mr 94**
Vibration of Cantilever Sandwich Beams (78-DE-20) (A) **O 92**
Western Design Engineering Show (NR) **Ag 71**

Design Engineering Technical Conference

Acoustic Radiation from a Venturi Type Flowmeter Due to Hydrodynamic Excitation (LWBR Development Program) (77-DET-165) (A) **F 130**
Alternative Tuned Absorbers for Steady-State Vibration Control of Tall Structures (77-DET-84) (A) **Ja 115**
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) (A) **Ja 110**
Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) (A) **Ja 106**
An Analysis of Undercut Conditions and of Appearance of Conditions and of Appearance of Contact Lines Envelope Conditions of Gears (77-DET-2) (A) **Ja 106**
An Analytical Approach for Establishing Case Depth Requirements in Carburized Gears (77-DET-152) (A) **F 129**
Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) (A) **Ja 115**
An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) (A) **Ja 114**
Application of Goal Programming to Machinability Data Optimization (77-DET-19) (A) **Ja 108**
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) (A) **Ja 112**
Beamlike Dynamic Vibration Absorbers (77-DET-176) (A) **F 131**
Bending Fatigue Strength of Gear Teeth under Random Loading (77-DET-120) (A) **F 126**
Bending of Stub Cantilever Plate and Some Application Plate and Some Applications to Strength of Gear Teeth (77-DET-48) (A) **Ja 112**
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part I: Analysis (77-DET-52) (A) **Ja 112**; Part 2: Experimental Investigation (77-DET-53) (A) **Ja 112**
Bevel Gear Differentials for Industrial Applications (77-DET-159) (A) **F 129**
Bevel Gears at 203 m/s (40,000 fpm) (77-DET-178) (A) **F 131**
A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) (A) **Ja 111**
Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) (A) **Ja 111**
A Complementary Large Slip Solution in V-belt Mechanics (77-DET-162) (A) **F 130**
Confidence in Fits (77-DET-130) (A) **F 127**
Coupling Selection for Synchronous Motor Drive Systems (77-DET-131) (A) **F 127**
Crack Propagation in Rotating Shafts (77-DET-164) (A) **F 130**
Critical Speeds, Stability, and Response of a Geared Train of Rotors (77-DET-30) (A) **Ja 110**
Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) (A) **F 131**
Design of Clamped Composite-Materal Plates to Maximize Fundamental Frequency (77-DET-88) (A) **F 122**
The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) (A) **Ja 109**
Design of Mechanical Components Using Optimal Control (77-DET-46) (A) **Ja 111**
A Design Procedure for Printed Wiring Boards (77-DET-110) (A) **F 125**
On the Design of Surface Durability of Rolling-Sliding Contact Surface (77-DET-115) (A) **F 125**
Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) (A) **F 131**
Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) (A) **Ja 115**
Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) (A) **Ja 112**
Difference Between Rolling Fatigue Behaviors of Surface Hardened and of Soft Steel Rollers (77-DET-57) (A) **Ja 113**
Dynamic Analysis of a Hydrostatic Clutch (77-DET-153) (A) **F 129**
Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) (A) **Ja 114**
Dynamic Analysis of Piping Systems Using Substructures (77-DET-144) (A) **F 128**
The Dynamic Characteristics of O-Rings (77-DET-27) (A) **Ja 110**
Dynamic Response of Packets of Blades by the Finite Element Method (77-DET-70) (A) **Ja 114**
Dynamic Stability of Fixed-Fixed and Free-Free Timoshenko Beams Resting on an Elastic Foundation (77-DET-134) (A) **F 127**
Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) (A) **F 124**
Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) (A) **F 123**
The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) (A) **Ja 111**
Dynamics of a Neutrally Buoyant Inflatable Oceanographic Platform (77-DET-139) (A) **F 128**
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tered Cantilevers Used in Underwater Applications (77-DET-92) (A) **F 124**
The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) (A) **Ja 112**
Effect of Number of Gashes in Hob on Accuracy of Generated Tooth Profile of Worm Gear (77-DET-55) (A) **Ja 112**
The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) (A) **Ja 113**
Elimination of a Resonant Fatigue Problem for Major Maintenance Benefits (77-DET-135) (A) **F 127**
Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) (A) **F 129**
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) (A) **Ja 109**
Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) (A) **F 126**
An Experimental Investigation of the Dynamic Behavior of a Roller Chain Drive (77-DET-168) (A) **F 130**
Experimental Investigation of Performance Characteristics of Flexible Shaft Couplings (77-DET-129) (A) **F 127**
Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**
An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) (A) **Ja 110**
An Experimental and Theoretical Study of the Effects of Simulated Pitch Line Pitting on the Vibration of a Geared System (77-DET-123) (A) **F 126**
Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) (A) **F 123**
Extensional and Shear Strain Damping Mechanisms in Constrained Layer Damped Vibration (77-DET-74) (A) **Ja 114**
Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) (A) **Ja 115**
Fast Generation and Manipulation of Curved Surfaces—A Tool for Computer Aided Design (77-DET-106) (A) **F 125**
Flat Belt Dynamics, Including Viscoelastic Effects (77-DET-166) (A) **F 130**
Flow of Friction Heat and Design Temperatures at Sliding Contacts (77-DET-113) (A) **F 125**
Fluid Forces in Real Heat Exchanger Tube Vibrations (77-DET-146) (A) **F 128**
Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) (A) **F 122**
On the Flutter Instability of a Suspension Bridge Using the Finite Element Method (77-DET-140) (A) **F 128**
Forced Response of Stiffened Plates (77-DET-150) (A) **F 129**
Forced Vibration of Continuous System with Nonlinear Boundary Conditions (77-DET-80) (A) **Ja 114**
Forced Vibration Testing of a Nuclear Fuel Assembly (77-DET-141) (A) **F 128**
The Forced Vibration of a Three-Layer Damped Circular Ring (77-DET-154) (A) **F 129**
On the Forces Between the Belt and Driving Pulley of a Flat Belt Drive (77-DET-16) (A) **F 130**
Free Vibration of Thin Rectangular Plates by a Mixed Finite Element (77-DET-143) (A) **F 128**
Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) (A) **Ja 114**
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors (77-DET-68) (A) **Ja 113**
Gear Noise Spectra—A Rational Explanation (77-DET-38) (A) **Ja 111**
A Generalized Decomposition Procedure and its Application to Engineering Design (77-DET-62) (A) **Ja 113**
Geometric Characteristics, Design and Manufacturing of Noncircular Gears (77-DET-177) (A) **F 131**
The Geometrical Analysis on Gear Skiving of Internal Gears (77-DET-133) (A) **F 127**
A Graphic-Man-Computer Environment for Three-Dimen-

sional Engineering Design (77-DET-117) (A) **F 126**
Heat Treatment, Structure, and Properties of Standard and Modified Vasco X-2 Carburizing Grade Gear Steels (77-DET-151) (A) **F 129**
A Hierarchal Data Organization-Facilitating Interactive Three-Dimensional Design (77-DET-108) (A) **F 125**
The Horizontal Plate Filter as a Torsional Vibration System with Vibration Absorption (77-DET-86) (A) **F 123**
Influence of Static and Dynamic Asymmetric Loading Conditions on Silo Design (77-DET-145) (A) **F 128**
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) (A) **F 123**
On the Kinematic and Dynamic Synthesis of a Variable-Speed Drive (77-DET-124) (A) **F 126**
Lattice Contact in Generated Spiral Bevel Gears (77-DET-63) (A) **Ja 113**
Load Distribution in Timing Belts (77-DET-100) (A) **F 124**
Low-Cycle Fatigue and Ultimate Strength Related to Gear Design (77-DET-66) (A) **Ja 113**
Manufacturing Method of Large-Size Marine High-Pressure Gears (77-DET-35) (A) **Ja 110**
Mechanically Induced Noise and Vibration in the Automotive Diesel Engine (77-DET-37) (A) **Ja 110**
Model for Gear Scoring (77-DET-60) (A) **Ja 113**
Model Verification of Mixed Dynamic Systems (77-DET-85) (A) **F 123**
Modeling and Analysis for Seismic Adequacy in Air Handling Unit Enclosures—The Effects of Structural Reinforcement (77-DET-136) (A) **F 127**
New Optimization Techniques (77-DET-169) (A) **F 130**
A New Wrinkle to Diaphragm Couplings (77-DET-128) (A) **F 127**
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) (A) **Ja 113**
On the Nonlinear Response of a Relief Valve (77-DET-81) (A) **F 122**
One-Stage and Two-Stage Vibration Isolators as Applied to High-Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) (A) **F 124**
Optimal Seismic Design of Plane Frames (77-DET-137) (A) **F 128**
Optimal Synthesis of Double Reduction Bevel/Helical Gear Units by Nonlinear Programming (77-DET-172) (A) **F 130**
Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) (A) **Ja 111**
Optimization of a Nonlinear Torsional Mechanical System (77-DET-107) (A) **F 125**
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) (A) **Ja 108**
Optimum Design of Fillets in Flat and Round Tension Bars (77-DET-45) (A) **Ja 112**
Optimum Design of the Homogeneous Plane-Stress Flywheel (77-DET-112) (A) **F 125**
Performance of Composite Flat Belt Drive Materials Under Simulated Power Transmission (77-DET-167) (A) **F 130**
Pitting Can Be Caused by Inadequate Lubrication (77-DET-114) (A) **F 125**
The Pitting Performance of Hardened Steels (77-DET-39) (A) **Ja 111**
Planetary Ball Drive Mechanical (PLABALL) (77-DET-170) (A) **F 130**
The Practical Significance of Designing to Gear Pitting Fatigue Life Criteria (77-DET-122) (A) **F 126**
The Protection of Intellectual Property—A Design Function (77-DET-111) (A) **F 125**
Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) (A) **F 123**
Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) (A) **F 122**
Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) (A) **F 122**
Response of Collecting Plates in Electrostatic Precipitators Due to Shear Rapping (77-DET-98) (A) **F 124**
Response of a Tube Bank to Turbulent Crossflow Induced Excitation (77-DET-142) (A) **F 128**
The Riccati Transfer Matrix Method (77-DET-32) (A) **Ja 110**
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) (A) **F 124**
Rotational Vibration With Backlash: Part 1 (77-DET-105) (A) **F 124**
Seismic Response of a Block Type Nuclear Reactor Core (77-DET-136) **F 128**
Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) (A) **Ja 108**
Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) (A) **Ja 111**
Shaft Couplings and the Cinderella Syndrome (77-DET-132) (A) **F 127**
A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) (A) **Ja 109**
Simplex Solution of Magnel's Method of Prestressed Concrete Beam Design (77-DET-109) (A) **F 125**
Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) (A) **Ja 112**
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) (A) **F 123**
Some Experiments on Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) (A) **Ja 109**
the Spring of the Ring (77-DET-125) (A) **F 126**
Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) (A) **Ja 114**
Standard-Pitch Gearing (77-DET-56) (A) **Ja 112**
The Steady-State Response of Systems With Hardening Hysteresis (77-DET-71) (A) **Ja 109**
Steady-State Unbalance Response of a Three Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) (A) **F 124**
On the Use of Strain Energy Density Fracture Criterion in the Design of Gears Using Finite Element Method (77-DET-158) (A) **F 129**
A Strategy for the Optimum Design of Acoustic Space (77-DET-44) (A) **Ja 111**
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) (A) **Ja 114**
A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) (A) **Ja 113**
A Study on Involute Worm Gearing on Non-Right Axial Angle (77-DET-36) (A) **Ja 110**
Study of Lubrication Jet Flow Phenomena in Spur Gears—Out Mesh Condition (77-DET-104) (A) **F 124**
A Study in Pneumatic Brake Selection (77-DET-127) (A) **S 126**
Study of the Vibrations of Rotating Blades (77-DET-147) (A) **F 129**
Super-Precision Single-Flank Gear Testing Machine (77-DET-118) (A) **F 126**
On the Surface Durability of Gears (77-DET-58) (A) **Ja 113**
Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) (A) **Ja 109**
A Technique for Assessing the Running Life of Thermoplastic Conveyor Chains (77-DET-160) (A) **F 129**
Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) (A) **F 131**
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) (A) **Ja 110**
Torsional Vibrations of Pre-twisted Cantilever Plates (77-DET-77) (A) **Ja 114**
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) (A) **Ja 110**
The Trailing Shoe Type Centrifugal Clutch—Design Principles and Characteristics (77-DET-126) (A) **F 126**
Transient Response of A Rotor in Damped Bearings (77-DET-21) (A) **Ja 109**
Transmission Errors and Noise of Spur Gears Having Uneven Tooth Profile Errors (77-DET-51) (A) **Ja 112**
Validity of Colville's Time Standardization for Comparing Optimization Codes (77-DET-116) (A) **F 126**
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) (A) **Ja 114**
Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) (A) **Ja 114**
Vibration and Noise Reduction of Beams and Plates by Use of Boundary Damping and Stiffness (77-DET-155) (A) **F 129**
Vibrations of Beams and Plates with Edges Elastically Restrained Against Rotation Carrying Elastically Mounted Masses (77-DET-87) (A) **F 122**
Vibrations in Very High Pressure Centrifugal Compressors (77-DET-15) (A) **Jo 108**
Vibrations and Vibrationless Rotation-Reciprocation Internally Geared Device, and on Vibrationless Chain Saw Utilizing This Device (77-DET-157) (A) **F 129**
Wear of Gears of Double Circular-Arc Tooth-Profile (77-DET-59) (A) **Ja 113**
Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) (A) **Ja 113**
Weight Minimization of Speed Reducer (77-DET-163) (A) **F 130**
Wheelset Lateral Dynamic Analysis Using the Describing Function Technique (77-DET-149) (A) **F 129**
Wide-Band Band Random Vibration of Circular Plates (77-DET-97) (A) **F 123**

Design Evaluation
Evaluation of a Water-Cooled Gas Turbine Combined Cycle Plant (78-GT-77) (A) **Ag 105**
The Influence of Market Research on Product Design and Materials Selection (78-DE-3) (A) **S 72**
Study of Boiled Joint Integrity and Inter-Tube Pass Leakage in U-Tube Heat Exchangers—Part I: Analysis (77-WA/NE-6) (A) **Je 101**

Design Improvements
Development of a Compact Gas Turbine Combustor to Give Extended Life and Acceptable Exhaust Emissions (78-GT-146) (A) **Ag 146**

Design Modifications
Determination of Dynamic Characteristics of an Impact Forming Machine Structure (A) **My 102**

Design Optimization
Optimum Design of Uniform-Section Disk Springs Under Various Constraints (77-WA/DE-22) (A) **Mr 96**
Structural Design Optimization of Once-Through Type Heat Exchangers (77-JPGC-NE-3) (A) **Mr 89**

Design Parameters
Analysis of Pneumatically Driven Double-Acting Reciprocating Pumps (78-DE-19) (A) **O 91**
Design of a Combined Solar Collector/Absorber/Desorber for a Solid-Absorption Refrigerating System (78-HT-35) (A) **O 95**
Optical Design and Performance of an Inverted Segmented Mirror Solar Concentrator (78-HT-32) (A) **O 96**
Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) (A) **Je 106**

Design Performance
An Experimental Study of Diagonal Flow Propeller Pump: Design Performance with Various Types of Blading (77-WA/FE-9) (A) **Ap 94**

Design Performance Criteria
Startup and Initial Operating Experience of Braintree's 85-Megawatt Combined-Cycle Unit (77-JPGC-GT-1) (A) **Mr 92**

Design Philosophy
Design and Development of a Power Turbine for the Spey Gas Generator (78-GT-183) (A) **S 75**
An Experimental Evaluation of a Single-Stage Water-Cooled Gas Turbine (77-JPGC-GT-2) (A) **Mr 92**

Design Point Correlation
A Design Point Correlation for Losses due to Part-Span Dampers on Transonic Rotors (78-GT-153) (A) **Ag 115**

Design Problems
Improving Design Problem Representation (78-DET-73) (A) **D 95**

Design Progression
Atmosphere Cloud Physics Laboratory Thermal Control (78-ENAs-9) (A) **N 111**

Design Requirements
The Application of Foil Air Bearing Turbomachinery in Aircraft Environmental Control Systems (78-ENAs-18) (A) **N 111**

Design Scholarships
Sutherland Scholarship Established (EN) **D 59**

Design Stresses
Spring Fatigue Recommended Design Stresses (78-DE-5) (A) **S 73**

Design Techniques
Reducing Costs With Coordinated Advanced Design and Production Techniques (78-DE-9) (A) **S 72**

Design Technology
Application of Nonseries Airfoil Design Technology to Highly Loaded Turbine Exit Guide Vanes (78-GT-108) (A) **Ag 109**

Design Verification
Verification of High Reliability Condenser Design (77-JPGC-Pwr-14) (A) **Mr 89**

Designer's Handbook
Spring Designer's Handbook (CB) **Ag 119**

Destroyers
The Gas Turbine Waste Heat Recovery System and the U.S. Navy (78-GT-170) (A) **Ag 116**

Desulfurization
Operating Experience with Three 20-MW Prototype Flue Gas Desulfurization Processes (78-JPGC-Pwr-12)

(A) **D 83**

Desulfurized Coal
Coal Desulfurization (CB) **My 106**

Detection Modules
Development Testing of Leak Injection Devices for Use in Testing Sodium-Water Leak Detection Modules (77-JPGC-NE-7) (A) **Mr 90**

Detection Transducers
Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) (A) **Mr 84**

Deterministic Disturbances
Deterministic Disturbance Rejection in Linear Identification (77-WA/Aut-1) (A) **Je 102**

Deutsch, S. Life Sciences in the Shuttle Era (78-ENAs-34) (A) **N 113**

Developed Countries
Appropriate Technology for Developed Countries (77-WA/TS-4) (A) **My 98**
New Directions in Engineering Education Suggestions for Developed Countries (77-WA/TS-6) (A) **My 99**

Development Methodology
Time-Phased Development Methodology-The Key For Reliable Engines In Future Military Aircraft Weapons Systems (78-GT-167) (A) **Ag 116**

Development Programs
Appropriate Technology—Past and Future (77-WA/TS-8) (A) **My 99**

Devine, M. J. Costs and Causes of Maintenance in a Ship's Diesel Propulsion System (77-WA/Lub-2) (A) **Ji 96**

Dhande, S. G. Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) (A) **Mr 94**

Dhir, V. K. Natural Convection Heat Transfer in Beds of Inductively Heated Particles (77-WA/HT-2) (A) **Ap 101**

Diagnostic Guidance
Turbine Engine Automated Trim Balancing and Vibration Diagnostics (78-GT-129) (A) **Ag 112**

Diagnostic System
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) (A) **Ag 109**

Diagonal Flow Study
An Experimental Study of Diagonal Flow Propeller Pump: Design Performance with Various Types of Blading (77-WA/FE-9) (A) **Ap 94**

Diamond Cutters
Gas Pressure Bonding of Stratapax (77-Pet-72) (A) **Ja 105**

Diamond Drill Bits
A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) (A) **Ja 103**

Diana, G. Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**; On the Flutter Instability of a Suspension Bridge Using the Finite Element Method (77-DET-140) (A) **F 128**

Diaphragm Couplings
A New Wrinkle to Diaphragm Couplings (77-DET-128) (A) **F 127**

Dibelius, N. R. Preliminary Design of Three Combustion Concepts to Burn Low Btu Coal Gas in a High Temperature 1600°C (3000°F) Combustion Turbine (78-GT-71) (A) **Ag 105**

Dicus, J. Synthesis of Blade Flutter Vibratory Patterns Using Stationary Transducers (78-GT-160) (A) **Ag 116**

Diesel Engine
Diesel Engine Progress (IF) **N 73**
Mechanically Induced Noise and Vibration in the Automotive Diesel Engine (77-DET-37) (A) **Ja 110**
Medium - Speed Diesel Plant (IF) **Je 65**

Diesel Engine Design
3-D Interactive Graphics Assist Diesel Engine Design **Mr 40**

Diesel Engines
Coal-Oil Mixture for Economy (BTR) **O 54**
New Way to Increase Mileage (NB) **My 72**

Diesel Locomotives
Higher Fuel Efficiency for EMD Diesel Locomotives (78-RT-4) (A) **O 90**
Progress in Railway Mechanical Engineering 1976-1977 Report of Survey Committee Locomotives (77-WA/RT-12) (A) **Mr 85**

Diesel Propulsion System
Costs and Causes of Maintenance in a Ship's Diesel Propulsion System (77-WA/Lub-2) (A) **Ji 96**

Dieter, B. A. Laissez-Faire vs. Leadership (C) **My 52**

Diethart, L. E. Breeder Reactors (C) **D 36**

Dietz, D. Flow Model Test Development of CRBRP Intermediate Heat Exchanger (77-JPGC-NE-10) (A) **Mr 10**

Differential Concept
Bevel Gear Differentials for Industrial Applications (77-DET-159) (A) **F 129**

Differential Equations
Stress Analysis and Stress-Intensity Factors for Finite Geometry Solids Containing Rectangular Surface Cracks (77-WA/APM-5) (A) **Ji 97**

Diffuser Flow
Vaneless Diffuser Flow with Extremely Distorted Inlet Profile (78-GT-47) (A) **Ji 92**

Diffuser Inlet Flow
Vaned Diffuser Inlet Flow Conditions for a High Pressure Ratio Centrifugal Compressor (78-GT-50) (A) **Ji 93**

Diffusers
Analysis of the Flow Field in a Radial Compressor (78-GT-7) (A) **Ji 87**
Annular Diffuser Performance for an Automotive Gas Turbine (78-GT-147) (A) **Ag 114**
Experimental Investigation of Unsteady Phenomena in Vaneless Radial Diffusers (78-GT-23) (A) **Ji 89**
Experimental Study on Diffusers for Mixed-Flow Machines (78-GT-120) (A) **Ag 110**
Experimental Study on Flow in a Supersonic Centrifugal Impeller (78-GT-2) (A) **Ji 87**
Flow in an Annular Axial-Radial Diffuser (78-GT-133) (A) **Ag 112**
Limits of Rotating Stall and Stall in Vaneless Diffuser of Centrifugal Compressors (78-GT-19) (A) **Ji 88**
Performance Investigations of Large Capacity Centrifugal Compressors (78-GT-3) (A) **Ji 87**
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) (A) **Ag 115**
Subsonic Compressible Conical Diffuser Flow Analysis (77-WA/FE-2) (A) **Ap 93**

Diffusion Factor Correlation
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) (A) **Ji 95**

Diffusivity
Effective Thermal Diffusivity for a Two-Layer Composite Wall Subject to Periodic Boundary Conditions (77-WA/Sol-10) (A) **My 98**

Digital Computer Solution
The Stability of the Three-Way Underlapped Hydraulic Spool Servovalve (77-WA/Fics-9) (A) **Ap 98**

Digital Computers
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) (A) **S 74**

Digital Control Method
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) (A) **Je 103**

Digital Converter Interface
A Servo Control System Design for Electronic Pattern Control in a Consumer Sewing Machine (78-DE-14) (A) **S 74**

Digital Electronic Control
Full Authority Digital Electronic Control—Highlights of Next Generation Propulsion Control Technology (78-GT-165) (A) **Ag 116**

Digital Electronic System
A Digital Approach to Industrial Gas Turbine Control (78-GT-39) (A) **Ji 91**

Digital Filters
Signature Analysis Methods and Applications for Rotating Machines (77-WA/Aut-5) (A) **Je 102**

Digital Fuel Control System
A Digital Fuel Control System for Gas Turbines (78-GT-99) (A) **Ag 108**

Digital Readout Systems
Costs Down 20 Percent with Digital Readout (BTR) **Ap 52**

Digital Technology
Control Room of Future: CRT's Supplant Analog Displays (BTR) **F 55**

Digitized Image
Computer Vision (BTR) **Ja 57**

Diller, K. R. A Technique for the Measurement of Burn Induced Leakage of Macromolecules in Living Tissue (77-WA/HT-46) (A) **My 100**

Dilpare, A. L. A Two-Dimensional Numerical Solution to Freezing/Melting in Cylindrical Coordinates (77-WA/HT-11) (A) **Ap 102**

Dimarogonas, A. D. Flow of Friction Heat and Design Temperature at Sliding Contacts (77-DET-113) (A) **F 125**

DiPippo, R. Hybrid Fossil-Geothermal Power Plants (77-WA/Ener-2) (A) **My 93**; Hybrid Geothermal–Fossil Power Plants **D 28**

Direct Blade Force Measurements
Direct Blade Force Measurements in Transonic Cascade Flows (78-GT-45) (A) **Ji 93**

Direct Cycle Nuclear Power Plants
An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Ji 94**

Direct Cycle Power Plants
Bearing Compartment Seal Systems for Turbomachinery in Direct-Cycle HTGR Power Plants (78-GT-38) (A) **Ji 91**

Direct Digital Control Algorithms
Microcomputer Implementation of Direct Digital Control Algorithms for Thermal Process Control Applications (77-WA/Aut-3) (A) **Je 102**

Discrete Dampers
Vibration of Beams Carrying Discrete Dampers and Masses (77-WA/DE-7) (A) **Mr 94**

Discrete-Time Series Parallel
Deterministic Disturbance Rejection in Linear Identification (77-WA/Aut-1) (A) **Je 102**

Disk Cams
Design Charts for Disk Cams with Reciprocating Radial Roller Followers (78-DET-36) (A) **D 91**

Disk Forging
Disk and Strip Forging with Side-surface Foldover: Part 1—Velocity Field and Upper Bound Analysis (77-WA/Prod-36) (A) **Je 107**; Part 2—Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) (A) **Je 107**

Disk Geometry
Limit Analysis of Hollow Disk Forging Part 1: Upper Bound (77-WA/Prod-2) (A) **My 103**

Disk Pumps
Disk Pump Performance in Turbulent Flow (77-WA/FE-26) (A) **Ap 96**

Disk Springs
Optimum Design of Uniform-Section Disk Springs Under Various Constraints (77-WA/DE-22) (A) **Mr 96**

Disks
Determining the Coefficient of Friction for Rolling Disks (77-Lub-11) (A) **Mr 85**
Dynamic Analysis of a Hydrostatic Clutch (77-DET-153) (A) **F 129**
Heat Transfer From Axisymmetric Sources at the Surface of a Rotating Disk (78-GT-141) (A) **Ag 114**
Jet Cooling at the Rim of a Rotating Disk (78-GT-25) (A) **Ji 89**
Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) (A) **Ag 109**
Traction Behavior in Sliding ehl Contacts (77-Lub-5) (A) **F 132**

Dislocation Cores
The Elastic Energy of Interacting Edge Dislocations in an Infinite Array (77-WA/APM-20) (A) **Ji 98**

Dispersive Electrodes
Measurements of Temperature Distributions at Electrosurgical Dispersive Electrode Sites (77-WA/HT-47) (A) **My 100**

Displacement Analysis
Displacement Analysis of RRGRR Mechanism (78-DET-8) (A) **D 88**
Displacement Analysis of a Spatial 7R Mechanism—A Generalized Lobster's Arm (78-DET-10) (A) **D 89**
Displacement Analysis of Spatial 7R Mechanisms Suitable for Constant-Velocity Transmission Between Parallel Shafts (78-DET-9) (A) **D 88**

Disposal Systems
"CANWEL"—A Canadian System for Domestic Waste Management and Energy Reclamation (77-WA/Fu-2) (A) **My 92**

Dissimilar Elastic Materials
The Plane Symmetric Contact Problem for Dissimilar Elastic Semi-Infinite Strips of Different Widths (77-WA/APM-13) (A) **Ji 97**

Distillate Fuels
Test Results of a New Distillate Fuels Purification System (78-GT-203) (A) **S 77**

Distorted Flow
Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**
Distorted Inlet Profile
Vaneless Diffuser Flow with Extremely Distorted Inlet Profile (78-GT-47) (A) **JI 92**
Distributed Flow
Radial Vaneless Diffusers: A Re-Examination of the Theories of Dean and Senoo and of Johnston and Dean (78-GT-186) (A) **Ag 105**
Distribution System
Selection of Compressors and Driving Equipment (78-GT-168) (A) **Ag 116**
Ditaranto, R. A. Experimental Investigation of Simulated Helicopter Fuel Cell Impact Phenomenon (78-DET-79) (A) **D 95**
Diving Systems
Undersea Work System (BTR) **N 62**
Doctorates
Geared to Business (C) **JI 42**
Status of Minority and Women Ph.D.'s in the 1970s (EN) **F 58**
Documentation Control
Gathering Technical Data: A New Approach (NR) **Mr 62**
Dodson, J. C. Design Features and Performance Characteristics of a Low Horsepower Multipurpose Pump (77-Pet-64) (A) **Ja 105**
Dogru, S. Optimum Development of Offshore Oilfield Operations (77-Pet-50) (A) **Ja 103**
Domestic Fuel
H-Power in Provo (BTR) **F 58**
Domestic Heat
An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **JI 94**
Domestic Waste
"CANWEL"—A Canadian System for Domestic Waste Management and Energy Reclamation (77-WA/Fu-2) (A) **My 92**
Donaghey, L. F. Microcomputer Implementation of Direct Digital Control Algorithms for Thermal Process Control Applications (77-WA/Aut-3) (A) **Je 102**
Donaldson, A. B. Effective Thermal Diffusivity for a Two-Layer Composite Wall Subject to Periodic Boundary Conditions (77-WA/Sol-10) (A) **My 98**
Donath, M. Feasibility of an Active Control Scheme for Above Knee Prostheses (77-WA/Bio-8) (A) **Ap 98**
Donnelly, T. J. The Service Robot: Myths, Benefits, and Needs (78-JPGC-NE-10) (A) **D 85**
Donovan, P. The Effects of Ambient Conditions on Gas Turbine Emissions-Generalized Correction Factors (78-GT-87) (A) **Ag 106**
Dornbirer, S. D. Wind Power (C) **JI 41**
Dornfeld, D. Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) (A) **Je 106**
Dornfeld, D. A. Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) (A) **Je 106**; An Orthmorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) (A) **Je 107**
Double-Acting Pneumatic Cylinders
Analysis of Pneumatically Driven Double-Acting Reciprocating Driven Double-Acting Reciprocating Pumps (78-DE-19) (A) **O 91**
Double Cantilever Beams
A Photoelastic Evaluation of the Method of Measuring Crack Arrest Toughness with a Tapered DCB Specimen (78-Mat-15) (A) **O 100**
Double-Diffusive Instability
Double-Diffusive Instability in a Density-Stratified Fluid Along a Heated Inclined Wall (78-HT-43) (A) **O 97**
Double Phase Change
Dynamic Characteristics of Double-Pipe Heat Exchangers with Double Phase Change (77-WA/HT-26) (A) **Ap 104**
Double Pulse Holography
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) (A) **Ag 110**
Double Reduction Bevel/Helical Gears
Optimal Synthesis of Double Reduction Bevel/Helical Gear Units by Nonlinear Programming (77-DET-172) (A) **F 130**
Double Reduction Helical Gear Units
Optimal Synthesis of Double Reduction Helical Gear Units by Nonlinear Programming (77-DET-171) (A) **F 130**
Double Torsion Tests
A Three-Dimensional Finite Element Analysis of the Double Torsion Test (78-PVP-96) (A) **N 123**
Dousis, D. A. Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) (A) **Mr 84**
Dove, R. C. Seismic Response of a Block Type Nuclear Reactor Core (77-DET-138) (A) **F 128**
Dow, T. A. A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) (A) **F 132**
Downhole Measurements
Downhole Measurements of Thermal Conductivity in Geothermal Reservoirs (77-Pet-23) (A) **Ja 100**
Downs, B. Transverse Vibrations of Cantilever Beams Having Unequal Breadth and Depth Tapers (77-WA/APM-19) (A) **JI 98**
Downward Convection
Potential Improvement of Solar Pond Efficiency by Downward Convection (77-WA/HT-6) (A) **Ap 102**
Dowson, D. Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) (A) **Mr 86**
Draft-Gear Behavior
A Simple Dynamic Model for Stimulating Draft-Gear Behavior In Rail-Car Impacts (78-RT-2) (A) **O 90**
Drafting
Automating Mechanical Design Procedures (BTR) **F 54**
Draftsmanship '78 (EN) **Mr 67**
Drag Reduction
A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) (A) **Ap 96**
A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) (A) **Ap 95**
Drake, M. L. Elimination of a Resonant Fatigue Problem for Major Maintenance Benefits (77-DET-135) (A) **F 135**; An Example of Additive Damping as a Cost Savings Alternative to Redesign (77-WA/GT-2) (A) **Ap 100**
Drawing Accuracy
Distortion—Free Perspectives (BTR) **Ap 60**
Dresden, A. Alert Reader (C) **O 45**
Dresser Surface
Mechanics of Rotary Dressing of Grinding Wheels (77-WA/Prod-23) (A) **Je 105**
Drill Bit
Geothermal Drill Bit Improvement—Specific Application to the Geysers (77-Pet-67) (A) **Ja 105**
Seals for Geothermal Roller Drill Bits (77-Pet-53) (A) **Ja 103**
Stratapax Drill Bit for Gulf Coast Drilling (77-Pet-74) (A) **Ja 106**
Drill Pipe
Mechanical Systems for Handling Drill Pipe, Riser, and Casing (77-Pet-77) (A) **Ja 106**
Drilling
Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) (A) **Ja 101**
Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-68) (A) **Ja 105**
Drilling Bits
Cavijet® Augmented Deep-Hole Drilling Bits (77-Pet-54) (A) **Ja 104**
Drilling Hydraulics
Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) (A) **Ja 106**
Drilling Operations
World Offshore Developments (IF) **S 57**
Drilling Research
Techniques of Pilot-Scale Drilling Research (77-Pet-68) (A) **Ja 105**
Drills
A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) (A) **Ja 103**
Drive Line
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) (A) **Ja 110**
Driving Equipment
Selection of Compressors and Driving Equipment (78-GT-168) (A) **Ag 116**
Driving Pins
General Forms of Index Ratios and Generation of Variable Index Ratios by Series-Connected Geneva Mechanisms with Single or Multiple Driving Pins (78-DET-28) (A) **D 90**
Driving Pulley
On the Forces Between the Belt and Driving Pulley of a Flat Belt Drive (77-DET-161) (A) **F 130**
Droiet, T. S. An Evaluation of Liquid Radioactive Waste Treatment Systems for CANDU-PHW (78-JPGC-NE-17) (A) **D 86**
Dropwise Condensation
Recent Advances in Drop-wise Condensation Theory (77-WA/HT-21) (A) **Ap 103**
Drosjack, M. J. An Experimental and Theoretical Study of the Effects of Simulated Pitch Line Pitting on the Vibration of a Geared System (77-DET-123) (A) **F 126**
Dry-Ice Cooler
Dry-Ice, Liquid-Pulse-Pump, Portable Cooling System (78-ENAs-41) (A) **D 87**
Dry-Ice Garments
Design Considerations for Dry Ice Garments (78-ENAs-32) (A) **N 113**
Dry Rock Masses
Geothermal Energy: Heat Extraction From Hot Dry Rock Masses (77-Pet-41) (A) **Ja 102**
Dryburgh, D. C. The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) (A) **Ag 106**
Drying Effect
The Influence of Drying and Stress on the Permeability of Texas Lignite (77-Pet-26) (A) **Ja 101**
Dual Casing Hanger System
Glomar Challenger's Deep Water Reentry Cone/Dual Casing Hanger System (77-Pet-75) (A) **Ja 166**
Dual Screw Displacements
Dynamic Analysis of Spatial Mechanisms Using Fuel Successive Screw Method and D'Alembert's Principle (78-DET-22) (A) **D 90**
Dubowsky, S. Predicting Acoustical Noise Generation in Complex Mechanical Systems (78-DET-60) (A) **D 93**
Ductile Fracture
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) (A) **O 101**
A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) (A) **O 100**
Ductile Machine Elements
An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) (A) **Mr 94**
Ductility
Residual Ductility and Residual Stresses in Formed Heads (77-PVP-13) (A) **Ja 107**
Ducts
Heat Transfer Augmentation Using a Corona Discharge Air Jet (78-ENAs-8) (A) **N 111**
Marine Gas Turbine Inlet and Exhaust Systems for the R.N. (78-GT-190) (A) **S 75**
A Numerical Investigation of Three-Dimensional Flows in a Rotating Duct by a Partially-Parabolic Procedure (77-WA/FE-7) (A) **Ap 94**
Dudgeon Steam Wagon
The Dudgeon Steam Wagon: ASME's Centennial Gift to the Nation **N 94**
Duen H. F. The Application of Low Cost Manufacturing Technology to a Turbine Gas Generator (78-GT-202) (A) **S 77**
Dueck, D. D. The Effect of Primary Head Shape on Tubesheet Thickness (78-PVP-30) (A) **O 104**
Duff, C. G. Decoupling Criteria for Seismic Analysis of Nuclear Power Plant Systems (78-PVP-27) (A) **O 104**; Mass Coupling Effects in the Dynamic Analysis of Nuclear Power Plant Systems (78-PVP-28) (A) **O 104**; Response Spectrum Method with Residual Terms (78-PVP-79) (A) **N 121**; Seismic Design Margins for CANDU-PHW Nuclear Power Plants (78-PVP-38) (A) **N 116**
Duff, G. C. Seismic Design of Gyroscopic Systems (78-PVP-44) (A) **N 117**
Duffy, J. Displacement Analysis of a Spatial 7R Mechanism—A Generalized Lobster's Arm (78-DET-10) (A) **D 89**; Displacement Analysis of Spatial 7R Mechanisms Suitable for Constant-Velocity Transmission Between Parallel Shafts (78-DET-9) (A) **D 88**; Elections to Fellow Grade **O 88**
Dugdale Plastic Zone
Dugdale Plastic Zone Sizes for Edge Cracks (78-PVP-98) (A) **N 123**
Dukkipati, R. V. Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) (A) **F 131**; Kinematic Analysis of a Seven-Link Mechanism (78-DET-55)

(A) **D 92**

Dumas, R. Turbulence Scales in a Pipe Flow with a Slightly Heated Wall (78-HT-4) (A) **O 92**

Dunn, M. G. Measurement of Heat-Transfer Rate to a Gas Turbine Stator (78-GT-119) (A) **Ag 110**

Dunleman, N. R. Higher Fuel Efficiency for EMD Diesel Locomotives (78-RT-4) (A) **O 90**

Duntina, D. Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**

duPlessis, M. P. High Energy Water Jet Cutting Equations for Wood (77-WA/Prod-18) (A) **Je 104**; Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) (A) **Je 107**

Duplex Tube

Experimental Evaluation of Duplex Tube Heat Transfer Characteristics Stimulating Steam Generator External Heating (77-JPGC-NE-9) (A) **Mr 90**

Durban, D. Buckling of Cylindrical Shells Subjected to Nonuniform Axial Loads (77-WA/APM-12) (A) **Jl 97**

Durning, R. F. Power System Economics: on Selection of Engineering Alternatives (77-JPGC-Pwr-7) (A) **Mr 88**

Durocher, L. L. Grid Selection and Refinement Procedures in Finite Element Analysis (78-DE-21) (A) **O 92**

Duzy, A. F. An Economic Evaluation of Washed Coal for the Four Corners Generating Station (77-WA/CD-2) (A) **My 101**

Dwoyer, D. L. Laminar, Transitional, and/or Turbulent Three-Dimensional Boundary Layers over Arbitrary Blunt-Nosed Bodies Including Surface Curvature Effects (78-HT-23) (A) **O 94**

Dyad Synthesis

On the Existence of Circle-Point and Center Point Circles for Three Precision-Point-Dyad Synthesis (78-DET-44) (A) **D 91**

Dybbs, A. Energy Equations for Convection in Saturated Porous Media (78-HT-54) (A) **O 97**

Dye, J. Economic Factors in Mechanical Raise Boring (77-Pet-29) (A) **Ja 601**

Dyer, D. Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) (A) **Ja 115**

Dyer, W. G. *(author)* Team Building Issues and Alternatives (CB) **N 126**

Dynamic Absorbers

Beamlike Dynamic Vibration Absorbers (77-DET-176) (A) **F 131**

Dynamic Accuracy

Dynamic Accuracy of Hybrid Profiling Mechanisms in Cam Manufacturing (77-WA/DE-3) (A) **Mr 93**

Dynamic Analysis

Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) (A) **Ja 106**

Dynamic Analysis of a High-Speed Electrohydraulic Transient Rod Drive System (77-WA/Fics-8) (A) **Ap 97**

Dynamic Analysis of a Hydrostatic Clutch (77-DET-153) (A) **F 129**

Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) (A) **Ja 114**

Dynamic Analysis of Piping Systems Using Substructure (77-DET-144) (A) **F 128**

Mass Coupling Effects in the Dynamic Analysis of Nuclear Power Plant Systems (78-PVP-28) (A) **O 104**

Wheelset Lateral Dynamic Analysis Using the Describing Function Technique (77-DET-149) (A) **F 129**

Dynamic Behavior

An Experimental Investigation of the Dynamic Behavior of a Roller Chain Drive (77-DET-168) (A) **F 130**

Rapid Positive Load Changes by Gas Injection in Closed Gas Turbine Cycles (78-GT-8) (A) **Jl 87**

Simulation of Helicopter Powerplant Performance (78-GT-51) (A) **Jl 93**

Dynamic Cutting Data

Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) (A) **Je 108**

Dynamic Excitation

Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) (A) **Je 110**

Dynamic Expansion

On the Dynamic Expansion of a Circular Hole in an Infinite Plate (77-WA/APM-21) (A) **Je 611**

Dynamic Finite Element Analysis

Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**

Dynamic Foundation

DREB: A New Tool for Rolling Bearing Performance Simulation (78-DE-15) (A) **S 73**

Dynamic Fracture

Dynamic Fracture of 6061-T6 Aluminum Cylinders (77-WA/APM-14) (A) **Jl 97**

Effect of Axial Force on Dynamic Fracture of a Beam or Plate in Pure Bending (77-WA/APM-22) (A) **Jl 98**

Dynamic Fracture Toughness

Flaw Tolerance Evaluation of Heat Affected Zones (78-Mat-14) (A) **O 100**

Dynamic Influence

Decoupling of Undamped Vibration System (77-PVP-7) (A) **Ja 108**

Dynamic Load

Analytical Experimental Correlation of a Nonlinear System Subjected to a Dynamic Load (78-PVP-37) (A) **O 105**

Dynamic Loading Conditions

Influence of Static and Dynamics Asymmetric Loading Conditions on Silo Design (77-DET-145) (A) **F 128**

Dynamic Measurements

Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**

Dynamic Model

Design of an Elastic Wind Tunnel Model of a Tall Office Building Using a Finite Element Computer Code (77-WA/DE-6) (A) **Mr 94**

Model Formulation of Complex Mechanisms With Multiple Inputs: Part II—The Dynamic Model (77-WA/DE-10) (A) **Mr 94**

A Simple Dynamic Model for Stimulating Draft-Gear Behavior in Rail-Car Impacts (78-RT-2) (A) **O 90**

Dynamic Parameters

A New Class of Spool Valves with Built-In Dampers (78-DE-6) (A) **S 73**

Dynamic Plastic Response

Dynamic Plastic Response of an Immersed Pipe (77-PVP-8) (A) **Ja 108**

Dynamic Pressure Measurement

An Experimental Investigation of Cavitating Inducer Instability (77-WA/FE-14) (A) **Ap 95**

Dynamic Pressure Systems

Pressure Instrumentation for Gas Turbine Engines—A Review of Measurement Techn ..gy (78-GT-148) (A) **Ag 114**

Dynamic Pressure Transducer

Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) (A) **Ag 109**

Dynamic Programming

Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) (A) **Ja 111**

New Optimization Techniques (77-DET-169) (A) **F 130**

Dynamic Response

Dynamic Response of a Circular Cylinder Subjected to Liquid Cross Flow (78-PVP-15) (A) **O 103**

Dynamic Response of Packets of Blades by the Finite Element Method (77-DET-70) (A) **Ja 114**

Dynamic Response Testing of Gas Turbines (78-GT-31) (A) **Jl 90**

A Long-Term System Dynamic Response to a Sodium-Water Reaction in a Typical LMFBR Steam Generator Loop (78-PVP-66) (A) **N 119**

Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) (A) **Ja 111**

Dynamic Response Prediction

Computer Code for Predicting the Dynamic Response of High Energy Piping, Pressure Vessels, and Shell Structures Subjected to Transient Loads and Impacts, (78-PVP-33) (A) **N 116**

Dynamic Seismic Analysis

Nonlinear Transient and Spectrum Response Seismic Analysis of a Reactor Coolant Pump (78-PVP-36) (A) **O 105**

Dynamic Simulation

High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) (A) **Mr 84**

Thermal Design Criteria for Solar Hot Water Systems in Tropical Climates (78-HT-37) (A) **O 95**

Dynamic Stability

Dynamic Stability of Fixed-Fixed and Free-Free Timoshenko Beams Resting on an Elastic Foundation (77-DET-134) (A) **F 127**

Dynamic Stall

Dynamic Stall of An Airfoil with Leading Edge Bubble Separation Involving Time Dependent Re-Attachment (78-GT-194) (A) **S 76**

Dynamic Stiffness

Stiffness of Machine Tool Spindles (77-WA/Prod-42) (A) **Je 108**

Dynamic Switching

Effect of Scaling on Switching Time of Bistable Amplifiers (77-WA/Fics-5) (A) **Ap 97**

Dynamic System

Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) (A) **Ja 115**

Model Verification of Mixed Dynamic Systems (77-DET-85) (A) **F 123**

Dynamic Tooth Loads

Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) (A) **F 124**

Rotational Vibration With Backlash: Part 1 (77-DET-105) (A) **F 124**

Dynamic Vibration Balancing

Turbine Engine Automated Trim Balancing and Vibration Diagnostics (78-GT-129) (A) **Ag 112**

Dynamic Vibration Neutralizer

Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) (A) **F 123**

Dynamically Damped Floating Platforms

Dynamically Damped Floating (77-Pet-58) (A) **Ja 104**

Dynamically Positioned Ships

Deep Water Position Measuring System for Dynamically Positioned Ships (77-Pet-39) (A) **Ja 102**

Dynamics

Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) (A) **Ap 94**

Analysis of Pneumatically Driven Double-Acting Reciprocating Pumps (78-DE-19) (A) **O 91**

Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) (A) **Je 106**

Critical Speeds and Response of a Large Vertical Pump (78-PVP-34) (A) **O 105**

Design and Dynamic Performance of a Hydromechanical Impact Breaker (77-WA/Fics-3) (A) **Ap 97**

Deterministic Disturbance Rejection in Linear Indentification (77-WA/Aut-1) (A) **Je 102**

Determination of Dynamic Characteristics of an Impact Forming Machine Structure (77-WA/Prod-5) (A) **My 102**

Dynamic Characteristics of Double-Pipe Heat Exchangers with Double Phase Change (77-WA/HT-26) (A) **Ap 104**

The Dynamic Characteristics of O-Rings (77-DET-27) (A) **Ja 110**

Dynamics of A High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) (A) **F 123**

The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) (A) **Ja 111**

Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used In Underwater Applications (77-DET-92) (A) **F 124**

Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) (A) **Je 108**

Intermediate Heat Exchanger Development for the Clinch River Breeder Reactor Plant (77-WA/NE-10) (A) **Je 101**

Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) (A) **F 122**

Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) (A) **Ag 109**

Teaching of the Fluid Mechanics of Turbomachines (78-GT-161) (A) **Ag 116**

Transverse Vibrations of Cantilever Beams Having Unequal Breadth and Depth Tapers (77-WA/APM-19) (A) **Jl 98**

Quasi-Bifurcation in Dynamics of Elastic-Plastic Continua (77-WA/APM-3) (A) **Je 111**

Dynamics Analyzer

Train Dynamics Analyzer: A Training Simulator for Locomotive Engineers (77-WA/RT-10) (A) **Mr 85**

E

Earth Orbit Program

ECLSS Definition for a Low-Cost Space Construction Base (78-ENAs-15) (A) **N 112**

Earthquakes

Global Earthquakes Monitoring: Its Uses, Potentials and

Support Requirements (CB) **F 136**
Eason, E. D. Validity of Colville's Time Standardization for Comparing Optimization (77-DET-116) (A) **F 126**
Eberle, J. W. Can Coal-Oil Mixtures Make It as Industrial Fuels? **Mr 24**
Eccleston, R. J. Sealing Forces for Leak-Tight Operation of a Self-Energized Pressure Vessel Closure (78-PVP-16) (A) **O 103**
Eckerle, W. A. Design of an Elastic Wind Tunnel Model of a Tall Office Building Using a Finite Element Computer Code (77-WA/DE-6) (A) **Mr 94**
Eckhard, J. D. *(author)* Professional Engineer's License Guide (CB) **N 126**
Eckels, P. W. A Helium Cooling System for Large Superconducting A.C. Generators (77-WA/HT-36) (A) **Ap 105**
Eckler, N. H. Elections to Fellow Grade **Ja 97**
Ecklin, J. W. Fusion Power (C) **Ja 50**; Taking Advantage of the Beast (C) **Mr 47**
Economic Analysis
The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) (A) **Ag 113**
Economic Analysis of Boiler Feed Pump Drive Alternatives (77-JPGC-Pwr-8) (A) **Mr 88**
Economic Choice
Combustion Turbines-Economic Choice (77-JPGC-GT-4) (A) **Mr 93**
Economic Conditions
Research and Development Decisions Through the Use of Present Value Analysis (78-DE-2) (A) **S 72**
Running Hard to Stand Still (BTR) **Jl 47**
Economic Development
Appropriate Technology—Past and Future (77-WA/TS-8) (A) **My 99**
Economic Evaluation
Economic Evaluation Technique of Selecting Turbines for Natural Gas Pipelines (78-GT-67) (A) **Jl 95**
An Economic Evaluation of Washed Coal for the Four Corners Generating Station (77-WA/CD-2) (A) **My 101**
Economic Factors
Economic Factors in Mechanical Raise Boring (77-Pet-29) (A) **Ja 101**
Economic Feasibility
A Sour Note on Solar Energy (ES) **Ag 22**
Economic Growth
Japan: 7-Percent Economic Growth (IF) **Ag 66**
1978 R & D Forecast: No Real Growth (NR) **F 64**
Economic Guidelines
An Economic Guideline for the Design of Programmable Assembly Machines (77-WA/Aut-2) (A) **Je 102**
Economic Impact
A New Approach to Planning with Gas Turbines (77-JPGC-GT-3) (A) **Mr 93**
Performance Optimization of Existing Gas Pipeline Systems (77-Pet-85) (A) **Ja 107**
Economic Improvement
IEEE Talks Capital Gains (NB) **Ag 75**
Economic Operation
Electric Generation: Operating Economics and Unit Availability **Ap 28**
Operating Economics and Unit Availability (77-JPGC-Pwr-5) (A) **Mr 88**
Economic Power
Improving Productivity in the Third Century (77-WA/Mgt-2) (A) **My 96**
Economic Study
Commercial Powerplant Design Development for the Coal Fired Combined Cycle (77-JPGC-GT-6) (A) **Mr 93**
Economic Viability
Economic and Environmental Costs of Satellite Solar Power **Ja 32**
Economical Modelling Techniques
Scale Modelling Saves Money (ES) **F 27**
Economical Process
Inexpensive Metal Recycling (BTR) **N 66**
Ecuyer, J. L. Helium Blistering in Metals (78-Mat-5) (A) **O 99**
Eddy Current Inspection
Controlled Reluctance Eddy Current Inspection of Steam Turbine Blades (78-JPGC-Pwr-6) (A) **D 83**
Eddy Viscosity
Structure of a Turbulent Thermal Plume Rising Along an Isothermal Wall (78-HT-24) (A) **O 94**
Edgar, D. J. The Nuclear Equipment Arrangement of Darlington Generating Station (78-NE-11) (A) **N 115**
Edgar, T. F. The Influence of Drying and Stress on the Permeability of Texas Lignite (77-Pet-26) (A) **Ja 101**
Edge Cracks
Application of an Eigenfunction Expansion to the Determination of Stress-Intensity Factors (77-WA/GT-1) (A) **Ap 100**
Dugdale Plastic Zone Sizes for Edge Cracks (78-PVP-98) (A) **N 123**
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) (A) **Jl 98**
Edge Beams
Analysis of Edge-Beam Reinforced Layered Cylindrical Pressure Vessels (78-PVP-103) (A) **N 124**
Edge Detection System
Dual Laser Welding System (BTR) **Ap 48**
Edge Dislocations
The Elastic Energy of Interacting Edge Dislocations in an Infinite Array (77-WA/APM-20) (A) **Jl 98**
Edgerton, R. H. Magnetodydrodynamic Solar Energy Converter (78-DET-70) (A) **D 94**; Thermoelectric Generators for Solar Energy Conversions (78-DET-75) (A) **D 95**
Editorials
ASME Convocation Points to New Directions **O 19**
ASME's Centennial—Let's Celebrate! **My 17**
Communication (Ed) **D 13**
On Engineering and Change **Ja 17**
Engineers—Strength in Crisis **F 25**
Introspection—Our Hidden Strength **Ap 19**
Last (And Only) Word On Energy **S 19**
Looking at Tomorrow **Ag 21**
Modest Goals, Strong Traditions, High Hopes **Jl 17**
Retrospection—Pathway to the Future **Je 17**
WAM '78—We Have Met the Future—It Is Ours **N 19**
What Technology Transfer? **Mr 17**
Education Programs
Gas Turbine Education and Research Programs in German Universities (78-GT-171) (A) **Ag 117**
Teaching of the Fluid Mechanics of Turbomachines (78-GT-161) (A) **Ag 116**
Training in the Gas Turbine Field in Belgium, in France, in Italy (78-GT-169) (A) **Ag 117**
The Use of Gas Turbine Laboratories in Teaching Engineering and Non-Engineering Students (78-GT-180) (A) **S 75**
Edwards, T. W. Atomic Issues (C) **Jl 43**
Effective Thermal Conductivity
Analysis of Transient Heat Transfer in Porous Solids with Application Toward Phase Separation Processes (77-WA/HT-13) (A) **Ap 102**
Efferding L. F. Experimental Evaluation of Duplex Tube Heat Transfer Characteristics Stimulating Steam Generator External Heating (77-JPGC-NE-9) (A) **Mr 90**
Egambaram, P. R. The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) (A) **F 132**
Egan, G. R. Stress Corrosion Crack Growth and Fracture Predictions for BWR Piping (78-Mat-23) (A) **O 101**
Eghbali, B. Experimental Investigation of Performance Characteristics of Flexible Shaft Couplings (77-DET-129) (A) **F 127**
Ehrich, F. Elections to Fellow Grade **N 109**
Ehrman, C. S. Maintenance of Clinch River Breeder Reactor Nuclear Island Systems (78-JPGC-NE-4) (A) **D 84**
Eigenfunction Expansion
Application of an Eigenfunction Expansion to the Determination of Stress-Intensity Factors (77-WA/GT-1) (A) **Ap 100**
Eilon, S., et al. *(author)* Applied Productivity Analysis for Industry (CB) **F 134**
Ejection Holes
Cooling Characteristics of Film Cooled Turbine Vane Having Multi-Row of Ejection Holes (78-GT-21) (A) **Jl 89**
Ekmann, J. M. Combustion of Coal-Oil Slurry in a 100-HP Firetube Boiler (77-WA/Fu-5) (A) **My 93**
El-Ariny, A. S. Steady Pressure Gradient Assisted Plane Couette Flow with Temperature Dependent Viscosity (78-HT-28) (A) **O 95**; Thermal Development of Flow in the Entrance Region of a Channel with Periodic Boundary Conditions (78-HT-27) (A) **O 95**
Elastallic Seal
The Elastallic Seal—A New Concept in Mechanical Connection of Marine Pipelines (77-Pet-84) (A) **Ja 107**
Elastic Analysis
Closed-End Cylindrical Shell Under Load Along a Generator (78-PVP-85) (A) **N 122**
Elastic Beams
Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) (A) **Ja 114**
Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) (A) **Ja 114**
Elastic Body Contact
A New Approximate Approach for Elastic Body Contact in Roller Bearings (78-DE-18) (A) **S 74**
Elastic Composites
On Harmonic Waves in Layered Composites (77-WA/APM-30) (A) **Jl 99**
Elastic Compression
Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) (A) **Je 107**
Elastic Cylindrical Shells
Stable Postbuckling Equilibria of Axially Compressed, Elastic Circular Cylindrical Shells: A Finite-Element Analysis and Comparison with Experiments (77-WA/APM-9) (A) **Jl 97**
Elastic Designs
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) (A) **Mr 92**
Elastic Distortion
The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearing (77-Lub-8) (A) **F 133**
Elastic-Dynamic Behavior
The Elastic-Dynamic Behavior of a Counterweighted Rocker Link with an Overhanging Endmass in a Four-Bar Linkage Part I: Theory (78-DET-23) (A) **D 90**, Part II: Application and Experiment (78-DET-24) (A) **D 90**
Elastic Ellipsoidal Inclusions
A Self-Consistent Approach to Multiple Scattering by Elastic Ellipsoidal Inclusions (77-WA/APM-25) (A) **Jl 98**
Elastic Energy
The Elastic Energy of Interacting Edge Dislocations in an Infinite Array (77-WA/APM-20) (A) **Jl 98**
Elastic Field
The Elastic Field Outside an Ellipsoidal Inclusion (77-WA/APM-29) (A) **Jl 99**
Elastic Foundations
Dynamic Stability of Fixed-Fixed and Free-Free Timoshenko Beams Resting on an Elastic Foundation (77-DET-134) (A) **F 127**
Elastic Four-Bar Chain
Experimental Kinematic Analysis and a New Technique of Synthesis of an Elastic Four Bar Chain (78-DET-63) (A) **D 94**
Elastic Fracture Mechanics
Fatigue Crack Propagation of Short Cracks (78-Mat-7) (A) **O 100**
Fracture Analysis of the Adhesively Bonded Cracked Panels (77-WA/Mat-2) (A) **Je 108**
Elastic Linkages
A Closed-Form Numerical Algorithm for the Periodic Response of High-Speed Elastic Linkages (78-DET-15) (A) **D 89**
A Computationally Efficient Numerical Algorithm for the Transient Response of High-Speed Elastic Linkages (78-DET-54) (A) **D 93**
Elastic Material
Effect of Axial Force on Dynamic Fracture of a Beam or Plate in Pure Bending (77-WA/APM-22) (A) **Jl 98**
Elastic Mechanisms
A Hierarchy of Methods for Analysis of Elastic Mechanisms with Design Applications (78-DET-56) (A) **D 92**
Elastic Modulus
Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) (A) **Mr 86**
Elastic-Plastic Behavior
The Elastic-Plastic Behavior of a Tube During Expansion (78-PVP-112) (A) **N 125**
Elastic-Plastic Buckling
Elastic and Elastic-Plastic Buckling of Internally-Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) (A) **N 117**
Elastic-Plastic Continua
Quasi-Bifurcation in Dynamics of Elastic-Plastic Continua (77-WA/APM-3) (A) **Je 111**
Elastic-Plastic Finite Element
Application of a Finite Element Computer Program for Investigating Failure Mechanisms in Military Ammunition (77-WA/DE-20) (A) **Mr 96**
A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) (A) **Je 104**
Elastic-Plastic Plates
Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) (A) **O 102**

Elastic-Plastic R-Curves
Elastic-Plastic R-Curves (78-Mat-12) (A) **O 99**
Elastic Properties
The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) (A) **Je 108**
An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) (A) **Je 107**
Elastic Space
On the Stress Field Due to Initial Strains in a Cuboid Surrounded by an Infinite Elastic Space (77-WA/APM-17) (A) **Jl 98**
Elastic Spring Supports
Stability of Elastically Restrained Timoshenko Cantilevers With Attached Masses Subjected to a Follower Force (77-WA/APM-7) (A) **Jl 97**
Elastic Strips
The Plane Symmetric Contact Problem for Dissimilar Elastic Semi-Infinite Strips of Different Widths (77-WA/APM-13) (A) **Jl 97**
Elastic Wind Tunnel
Design of an Elastic Wind Tunnel Model of a Tall Office Building Using A Finite Element Computer Code (77-WA/DE-6) (A) **Mr 94**
Elastically Restrained Edges
Vibration of Beams and Plates with Edges Elastically Restrained Against Rotation Carrying Elastically Mounted Masses (77-DET-87) (A) **F 122**
Elasticity
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) (A) **Mr 92**
A High-Order Theory of Plate Deformation—Part 2: Laminated Plates (77-WA/APM-24) (A) **Jl 98**
Saint-Venant's Principle and End Effects in Anisotropic Elasticity (77-wa/APM-11) (A) **Jl 97**
Three-Dimensional Elasticity Solution of a Spherical Dome (77-WA/APM-26) (A) **Jl 98**
Elastico-Viscous Fluid Lubrication
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) (A) **Mr 87**
Elasto-Plastic Column Design
On Elasto-Plastic Column Design (77-WA/DE-17) (A) **Mr 95**
Elastodynamics
Elastodynamics of Planar Mechanisms Using Planar Actual Finite Line Elements, Lumped Mass Systems Matrix-Exponential Method, and the Method of "Critical-Geometry-Kineto-Elasto-Statics" (CGKES) (78-DET-26) (A) **D 89**
Elastohydrodynamic Contacts
Asperity Interactions in EHD Contacts (77-Lub-19) (A) **Mr 86**
Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) (A) **Mr 86**
Elastohydrodynamic Fraction
DREB: A New Tool for Rolling Bearing Performance Simulation (78-DE-15) (A) **S 73**
Elastohydrodynamic Lubrication
Determining Minimum Film Thickness for Ball Bearings (BTR) **F 56**
Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) (A) **Mr 86**
Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) (A) **F 132**
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) (A) **Mr 86**
Elastomer Dies
Confined and Unconfined Elastomer Dies for Metal Bending (78-DE-11) (A) **S 72**
Elastomers
New Fender Covered by Thick, Tough, Elastomer (BTR) **F 57**
Eldridge, J. L. In Vivo Pressure Activity in the Canine Vas Deferens (77-WA/Bio-7) (A) **Ap 98**
Electric Arc
Investigation of Heat Transfer Between an Electric Arc and a Turbulent Gas Flow in a Channel (78-HT-8) (A) **O 92**
Electric Automobiles
A Practeral Electric Nudges Foward (BTR) **D 44**
Electric Capacitors
Smaller Substations (ES) **Ap 20**
Electric Car
Off-the-Shelf Electric (BTR) **N 60**
. . .or Maybe the Electric Car? (ES) **N 20**
Electric Clutch
Controlling Bridge Cranes via Electric Clutch (BTR) **My 61**
Electric Generating Plants
Power Shortages Ahead (ES) **Ap 21**
Electric Generating Stations
Power's Effect: A Case Study (ES) **F 26**
Electric Generator Installations
On-Site Generation of Hydrogen for Generator Cooling (78-GT-196) (A) **S 76**
Electric Generators
Electric Generation: Operating Economics and Unit Availability **Ap 28**
Outage Factors—An Aid to Analyzing Electric Generating Unit Reliability (77-JPGC-Pwr-9) (A) **Mr 88**
20-MVA Supercold Generator (BTR) **Ap 58**
Electric Ignition System
Good News on Pilot Gas Control (ES) **O 47**
Electric Light Bulb
Centennial of Light will Celebrate Edison's Invention in 1979 (NR) **O 68**
Electric Locomotives
Locomotive Matters (C) **My 50**
Meritorious Metroliners (C) **My 50**
The New Electric Locomotives **Ja 43**; (C) **Mr 48**
Performance of GM10B Electric Locomotive (C) **Mr 48**
Railroad Remarks (C) **Je 50**
Electric Motor
Gearless Speed-Reduction Motor (BTR) **Ap 50**
Electric Power
Applications of Inertial Confinement Fusion (BTR) **Jl 49**
Automated Urban Mass Transportation (BTR) **Ja 56**
Big Dish in Texas (ES) **O 47**
Breeder Reactor Held Vital (ES) **My 20**
Congeneration of Steam and Electric Power (CB) **D 97**
Combustion Turbines—Economic Choice (77-JPGC-GT-4) (A) **Mr 93**
Convert Laser Power to Electrical Power (BTR) **Je 59**
Inventing the Future **N 91**
Load-Levelling with Battery Power (BTR) **Ja 59**
Magnetohydrodynamic Energy for Electric Power Generation (CB) **Jl 101**
Nation's Largest Wind Turbine Generator (BTR) **N 67**
Possibilities for Solar-Thermal (ES) **Ag 23**
Solar-Powered Lookout Towers (BTR) **O 49**
A Sour Note on Solar Energy (ES) **Ag 22**
Electric Power Plants
Design of a High Efficiency Combined Cycle Electric Power Plant for Low Btu Coal-Gas (78-GT-125) (A) **Ag 111**
Design of a Pressurized Fluid Bed Coal Fired Combined Cycle Electric Power Generation Plant (78-GT-135) (A) **Ag 113**
Transpiration Air Protected Turbine Blades—An Effective Concept to Achieve High Temperature and Erosion Resistance for Gas Turbines Operating in an Aggressive Environment (78-GT-100) (A) **Ag 108**
UHV Effects on Ecosystem (BTR) **N 66**
Electric Power Research Institute
Information on Coal Resources (ES) **Ap 21**
Pushing Ahead on Nuclear Safety (ES) **Jl 23**
Electric Stimulator
In Vivo Pressure Activity in the Canine Vas Deferens (77-WA/Bio-7) (A) **Ap 98**
Electric Utilities
A Big Win for Lignite (ES) **Jl 23**
Boilers Sales Booming (ES) **O 46**
Coal for Utilities (ES) **Ja 19**
Computer Forecasting is the Answer (ES) **S 20**
EEI on Supreme Court Decision (ES) **Je 19**
Electric Utilities—Another Growth Year (NB) **Je 75**
Flywheels (C) **My 51**
Materials for Fusion Reactors (ES) **Je 19**
Nuclear Licensing Delays (ES) **My 21**
Nuclear Power Comes Through! (ES) **S 21**
Power System Economics: on Selection of Engineering Alternatives (77-JPGC-Pwr-7) (A) **Mr 88**
A Promising New Superconductor (ES) **Jl 23**
Standardized Nuclear Systems (ES) **N 20**
Utilities Sponsor Solar Research (ES) **Je 18**
Electric Vehicles
Electric Vehicle Outlook (BTR) **Je 60**
Electric Vehicles Spark Interest of 10,000 in Philadelphia (NR) **N 74**
Heat Transfer in Lead-Acid Batteries (78-HT-52) (A) **O 97**
Vehicle Performance Standards (NB) **Ag 75**
Electrical Cars
Status of the Electric Car (BTR) **Je 61**
Electrical Engineers
Fast-Track II Free Women Engineers (EN) **N 81**
Electrical Generator
Electrical Generator Uses Ocean Waves (BTR) **Je 53**
Electrical Insulation
Three High-Pressure Component Failures (78-Mat-3) (A) **O 98**
Electrical Resistance Measurement
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**
Electrical Safety Engineering
Electrical Safety Engineering (CB) **N 126**
Electricity
Analytical Investigation of Thermal Barrier Coatings for Advanced Power Generation Combustion Turbines (77-WA/Ener-13) (A) **My 95**
Conceptual Design of a Coal-Fueled, Fluid Bed Combined Cycle Power Plant (77-WA/Ener-11) (A) **My 95**
Design and Calculated Performance and Cost of the ECAS Phase II Open Cycle MHD Power Generation System (77-WA/Ener-5) (A) **My 94**
Edison Centennial Symposium (NR) **N 76**
Electricity in Rocks May Help Prevent Mine Disasters (EN) **Je 76**
Florida Opts for Solid Waste Recovery (ES) **O 47**
A Hard Look at Liquid Coal (ES) **Ag 23**
A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) (A) **My 95**
House Power from Solar Cells (BTR) **O 56**
Integrated Power Plant (ES) **Je 19**
Moving Ahead on Ocean Thermal Energy (ES) **Je 19**
SHE Power (BTR) **D 39**
Solar Power at Less Cost (ES) **Jl 23**
Unplugging the Regulatory Bottleneck (ES) **S 20**
Electricity Saver
NASA Engineering Invents Electricity Saver (BTR) **D 38**
Electro-Conductive Coatings
The Design and Development of Heated, Impact Resistant Windshields for Locomotives (78-RT-5) (A) **O 90**
Electro-Discharge Machining Process
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/Prod-19) (A) **Je 105**
Electro-Hydraulic Control System
Designing for Reliability the Large Steam Turbine Mark II Control System (77-JPGC-Pwr-4) (A) **Mr 88**
Electro-Optical Techniques
Coriolis/Gyroscopic Flow Meter (77-WA/FM-4) (A) **Ap 100**
"Smart" Punch Press (BTR) **Ja 61**
Electrodynamics
The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) (A) **Ja 109**
Electrohydraulic Servosystem
Dynamic Analysis of a High-Speed Electrohydraulic Transient Rod Drive System (77-WA/Flcs-8) (A) **Ap 97**
Electrohydrodynamics
Space Charge Reduction in EHD Via Fluidic Switching (77-WA/Ener-3) (A) **My 93**
Electrokeratoplasty
The Eyes Have It (BTR) **Ja 63**
Electrolysis
Hydrogen Production by Electrolysis (IF) **D 48**
Electromagnetic Radiation
Hazards of Non-ionizing Radiations (BTR) **Ja 60**
Electromagnetic Shields
Flexural Vibrations of Rotating Electromagnetic Shields (77-WA/DE-15) (A) **Mr 95**
Electromechanical Shield Displacements
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) (A) **Mr 95**
Electronic Computers
Fuel Flow Elements for Automotive and Small Industrial Gas Turbines (78-GT-17) (A) **Jl 88**
Electronic Control System
Electronic Controls of Gas Turbine Engines in Fighting Vehicles (78-GT-48) (A) **Jl 93**
Electronic Safety Press Control (IF) **Ap 65**
A Microprocessor Based Hierarchical Control System for Gas Turbines (78-GT-124) (A) **Ag 111**
Electronic Controls
Computerized Handling System (BTR) **Ap 51**
Full Authority Digital Electronic Control—Highlights of Next Generation Propulsion Control Technology (78-GT-165) (A) **Ag 116**

Electronic Devices
Rechargeable, High-Energy Lithium Battery (BTR) **Je 58**
Electronic Logging Tool
Electronic Logging Tool (BTR) **Ap 61**
Electronic Pattern Control
Pattern Control System Requirements for an Electronic Consumer Sewing Machine (78-DE-12) (A) **S 72**
A Servo Control System Design for Electronic Pattern Control in a Consumer Sewing Machine (78-DE-14) (A) **S 74**
Electronic System
A Digital Approach to Industrial Gas Turbine Control (78-GT-39) (A) **Jl 91**
Electronically Controlled Sewing Machine
Pattern Control Actuator Design for Electronically Controlled Sewing Machine (78-DE-13) (A) **S 74**
Electronics
New Developments in Instrumentation and Control (77-WA/PID-1) (A) **My 101**
Electronics Industry
The Expanding Industry Horizons for Fiber Optics **Ja 20**
Electroplating System
Electroplating System Saves Energy and Cuts Pollution (BTR) **Ag 60**
Electrostatic Filtration Unit
Charged Filters Could Cut Pollution Costs by 80 Percent (EN) **Je 76**
Electrostatic Filtration (EN) **Ap 75**
Electrostatic Precipitators
Factors Detrimental to Electrostatic Precipitator Performance (77-WA/APC-7) (A) **My 101**
Response of Collecting Plates in Electrostatic Precipitators Due to Shear Rapping (77-DET-98) (A) **F 124**
Electrostatic Separators
A Combined System of Fuel Washing Involving Both Centrifuges and Electrostatic Separators—A Hybrid (78-GT-130) (A) **Ag 112**
Electrosurgical Sites
Measurements of Temperature Distributions at Electrosurgical Dispersive Electrode Sites (77-WA/HT-47) (A) **My 100**
Elena, M. Turbulence Scales in a Pipe Flow with a Slightly Heated Wall (78-HT-4) (A) **O 92**
Elevated Temperatures
An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) (A) **Mr 94**
Frequency Effects in the Elevated Temperature Crack Growth Behavior of Austenitic Stainless Steel—A Design Approach (78-PVP-97) (A) **N 123**
Stress Analysis for the Design of Liquid Metal Piping in the Fast Flux Test Facility (78-PVP-21) (A) **O 103**
Ellingwood, B. R. An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) (A) **O 101**
Elliott, J. L. Partial Dynamic State Synthesis by Use of Mass Parameters in a System Coupler Link (78-DET-61) (A) **D 93**
Ellipsoidal Inclusion
The Elastic Field Outside an Ellipsoidal Inclusion (77-WA/APM-29) (A) **Jl 99**
Ellipsoidal Shells
Elastic and Elastic-Plastic Buckling of Internally-Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) (A) **N 117**
Elliptic Cylinders
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) (A) **F 123**
Elliptic Notch
Experimental Investigation of the Angled Elliptic Notch Problem in Tension (77-WA/APM-6) (A) **Je 111**
Elliptical Contacts
Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) (A) **Mr 88**
Ellis, F. V. Finite Element Analysis of a Large Ridge Inert Atmosphere Creep Test Specimen (78-PVP-7) (A) **O 102**
Elmadany, M. On the Nonlinear Response of a Relief Valve (77-DET-81) (A) **F 122**
El-Masri, M. A. On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) (A) **Jl 90**
El-Taher, R. M. M. The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Cascades (77-WA/FE-5) (A) **Ap 93**
Elzoghby, A. A. Optimum Design of Uniform-Section Disk Springs Under Various Constraints (77-WA/DE-22) (A) **Mr 96**
Embedded Elliptical Crack
Embedded Elliptical Crack at a Corner (78-PVP-5) (A) **O 105**
Embrittled Reactor Vessel
A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) (A) **O 100**
Emerson, T. P. The Application of Foil Air Bearing Turbomachinery in Aircraft Environmental Control System (78-ENAs-18) (A) **N 111**
Emery, A. F. An Analysis of the Propagation of a Brittle Circumferential Crack in a Pipe Subjected to Axial Stresses (78-PVP-101) (A) **N 124**; Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**; Embedded Elliptical Crack at a Corner (78-PVP-5) (A) **O 102**; A Procedure for Estimating the Stress Intensity Factor of a Flattened Surface Crack at a Nozzle Corner (78-PVP-95) (A) **N 123**
Emission Characteristics
Radiative Heat Transmission from Nonluminous Gases. Computational Study of the Emissivities of Carbon Dioxide (78-HT-16) (A) **O 94**
Emission Coefficients
Model for Radiation Diagnostics in Turbulent Arcs (78-HT-13) (A) **O 93**
Emission Combustor
Design and Development of a Low Emission Combustor for a Car Gas Turbine (78-GT-155) (A) **Ag 115**
Emission Control
Emission Control for SO_x: An Update (78-JPGC-Pwr-11) (A) **D 82**
Emission Measurements
Measurement of Emissions Variability of a Large Turbofan Aero-Engine (78-GT-75) (A) **Ag 105**
Emission Monitoring
Acoustic Emission Monitoring During Rupture Test of Pressure Vessel and Laboratory Fracture Test (78-PVP-18) (A) **O 104**
Emission Techniques
A 1977 Approach to Sulfur Oxide Emissions (77-JPGC-Pwr-1) (A) **Mr 88**
Emissions-Generalized Correction Factors
The Effects of Ambient Conditions on Gas Turbine Emissions-Generalized Correction Factors (78-GT-87) (A) **Ag 106**
Emmerson, C. W. The Centaur Engine: Operational Progress Report (78-GT-159) (A) **Ag 116**
Empirical Loss Coefficients
Rationalization of Empirical Loss Coefficients and Their Application in One Dimensional Performance Prediction Procedures for Centrifugal Compressors (78-GT-177) (A) **S 75**
Employee Attitude Surveys
Improving U.S. Productivity—Part 2—How to Improve Management-Employee Relationships **O 30**
Employee Pension Plans
Major Firms Show Deficits in Funding of Employee Pension Plans (NR) **My 67**
Employment
Employer's Expectation of Test Engineers (77-WA/DE-29) (A) **Mr 96**
Government Jobs: Why They're Attractive, How to Land One (NB) **My 72**
Pensions, Patients, Employment (PS) **N 86**
Employment Guidelines
Age Discrimination Booklet (NB) **Ag 75**
Employer—Employee Patent Agreements (PS) **Je 80**
Employment Guidelines: Desirable Goals vs. Minimum Standards (PS) **Ag 81**
Guidelines to Professional Employment for Engineers and Scientists: Second Edition **Ap 36**
Employment Seminar
High School Academies Program Singled Out by White House (EN) **N 81**
Encryption Devices
Computer-Generated Cryptography for Data Security (BTR) **Mr 54**
End Plates
Closed-End Cylindrical Shell Under Line Load Along a Generator (78-PVP-85) (A) **N 122**
End-Wall Boundary Layer Method
An Axial Compressor End-Wall Boundary Layer Calculation Method (78-GT-81) (A) **Ag 105**
Endurance Strength
The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) (A) **Ja 112**
Energetics
Analytical Investigation of Thermal Barrier Coatings for Advanced Power Generation Combustion Turbines (77-WA/Ener-13) (A) **My 95**
Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**
Combined Cycles for Operation on Coal Derived Fuels with High-Temperature Combustion Turbines (77-WA/Ener-14) (A) **My 95**
Conceptual Design of a Coal-Fueled, Fluid Bed Combined Cycle Power Plant (77-WA/Ener-11) (A) **My 95**
Design and Calculated Performance and Cost of the ECAS Phase II Open Cycle MHD Power Generation System (77-WA/Ener-5) (A) **My 94**
A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) (A) **My 95**
Hybrid Fossil-Geothermal Power Plants (77-WA/Ener-2) (A) **My 93**
A Low-Risk Approach to the High-Temperature Turbine (77-WA/Ener-10) (A) **My 94**
Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal (77-WA/Ener-9) (A) **My 94**
Performance and Cost Evaluation for a Thermionic Topping Power Plant (77-WA/Ener-7) (A) **My 94**
Space Charge Reduction in EHD Via Fluidic Switching (77-WA/Ener-3) (A) **My 93**
Thermionic Energy Conversion Topping System (77-WA/Ener-6) (A) **My 94**
A Thermodynamic Study of Heating With Geothermal Energy (77-WA/Ener-1) (A) **My 93**
The Utilization of High-Temperature Gas Turbines in Integrated Coal-Derived Fuel Combined Cycles (77-WA/Ener-12) (A) **My 95**
The Wind, a Low-Grade Energy Source (77-WA/Ener-4) (A) **My 93**
Energy
The Age of Effluence: Solid Waste Into Energy **Jl 69**
Annual Review of Energy (CB) **Ap 107**
The Breeder—Now or Never (NR) **Je 66**
Btu Accounting (ES) **Ap 20**
Capturing Energy from Industrial Waste Heat **Ag 30**
Charged Filters Could Cut Pollution Costs by 80 Percent (EN) **Je 76**
The Effect of Certain Major Parameters on the Annual Effectiveness of Solar Systems for Residential Dwellings (77-WA/Sol-3) (A) **My 97**
Effects of Joule Heating on Plasma Heat Transfer (78-HT-11) (A) **O 93**
"Elegant Frugality" via Soft Technologies (BTR) **Ap 50**
Energy and American Goals (C) **S 46**
On Energy Issues (C) **Mr 47**
Energy Requirements of the Rail Mode (78-RT-1) (A) **O 90**
Energy Regulations Criticized (ES) **Ap 20**
Energy Supply Through 1990 (ES) **F 26**
ESCOE Offers Job Opportunities (NR) **Ap 70**
Evaluating Geothermal Reservoirs (ES) **Ap 20**
Fuel Pellets from Forest Wastes (ES) **Ag 22**
Funding Synthetic Fuel Programs (ES) **Ap 20**
Fusion Energy (77-WA/NE-1) (A) **Je 100**
Geothermal Energy is Viable Alternative, ASHRAE Meeting Hears (NR) **Ag 72**
Heated Words on "Hot Topics" (C) **Jl 42**
Higher Fuel Efficiency for EMD Diesel Locomotives (78-RT-4) (A) **O 90**
How Energy Affects the Economy (CB) **S 78**
Hybrid Fossil-Geothermal Power Plants (77-WA/Ener-2) (A) **My 93**
Little Boy and Fat Man (BTR) **Je 56**
Looking at the Energy Realities With Congressman Mike McCormick **My 22**
Low-Cost Test Procedure for Solar Collectors (77-WA/Sol-4) (A) **My 97**
One Less Geothermal Worry! (ES) **Je 19**
Other Looks at "Energy Realities" (C) **J 44, 45**
Our Energy Future: The Role of Research Development, and Demonostration in Reaching a National Consensus on Energy Supply (CB) **Ja 117**
Perspectives on the Energy Crisis: Mankind's Energy Challenge, Fossil Fuels, Solar, Nuclear, Regional/National Reponses (CB) **Ap 106**
As a Reader Sees It (C) **N 57**
September Statements (C) **F 52**
Solar-Power Mountain Concept (BTR) **Ap 49**

Status of the Electric Car (BTR) **Je 61**
Thermal-Acoustical Phenomena in Pulsed High-Energy Lasers (78-HT-61) (A) **O 98**
A Thermodynamic Study of Heating With Geothermal Energy (77-WA/Ener-1) (A) **My 93**
The Uranium Enrichment Business (ES) **My 20**
Uranium Enrichment by Gas Centrifuge (ES) **Je 18**
On the Use of Strain Energy Density Fracture Criterion in the Design of Gears Using Finite Element Method (77-DET-158) (A) **F 129**
The Utilization of High-Temperature Gas Turbines in Integrated Coal-Derived Fuel Combined Cycles (77-WA/Ener-12) (A) **My 95**

Energy Accelerator
Carter O.K.'s Energy Accelerator (NB) **Ap 71**

Energy Auditors
Home Energy Auditors (ES) **Je 18**

Energy Bill
The GOP's Most Perilous Hour (NB) **D 58**

Energy Budget
DOE's 1978 Budget—Before It Goes Through the Mill (WW) **Mr 70**

Energy Code
Georgia's Innovative Energy Code (ES) **N 21**

Energy Commitments
Badger's Energy Commitments (ES) **N 20**

Energy Conference
ASME Aids State Lawmakers (NR) **F 65**

Energy Conservation
Analysis of Crack Arrest in Reactor Pressure Vessels (78-Mat-16) (A) **O 100**
The Application of Turboexpanders for Energy Conservation (77-Pet-17) (A) **Ja 100**
Best Designs in Energy Conversion Win Awards (NR) **F 66**
Business Opportunities in Energy Conservation (ES) **O 46**
Cheap, Clean, and Available (ES) **Ja 19**
Designing for Home Energy Conservation (EN) **Ag 76**
Electroplating System Saves Energy and Cuts Pollution (BTR) **Ag 60**
The Evolution of Conservation as a Key Element of National Energy Policy (77-WA/TS-3) (A) **My 98**
Geothermal Energy: Heat Extraction From Hot Dry Rock Masses (77-Pet-41) (A) **Ja 102**
Good News on Pilot Gas Control (ES) **O 47**
Heat Pipe Heat Exchangers for Solar Homes (77-WA/Sol-7) (A) **My 97**
Load-Levelling with Battery Power (BTR) **Ja 59**
Ol' Sol in Agricultural Technology (BTR) **S 53**
Plant Engineers and Managers Guide to Energy Conservation (CB) **F 135**
Salute to Energy Conservation (ES) **D 15**
They Really Mean It (NB) **N 79**
Transportation Energy Conservation Data Book (CB) **My 105**
Turboexpanders for Energy Conservation **S 34**
Waste Heat Recycling System Replaces Gas Boiler (BTR) **N 67**
Waste Processing Conference Stresses Energy Conservation **Mr 75**
Welcoming the Nuclear Future (C) **N 57**

Energy Conversion
Energy Conversion Engineering Conference (NR) **Jl 61**
Great Increases in Conversion Efficiencies Predicted (NR) **O 62**
Higher-Efficiency Thin-Film Cells (ES) **N 21**
Low-Grade Thermal Energy-Conversion Joule Effect Heat Engines (78-ENAs-7) (A) **N 110**
Ocean Power—A Growing Reality (ES) **N 20**
Training in the Gas Turbine Field in Belgium, in France, in Italy (78-GT-169) (A) **Ag 117**

Energy Conversion Alternatives
Design and Calculated Performance and Cost of the ECAS Phase II Open Cycle MHD Power Generation System (77-WA/Ener-5) (A) **My 94**
Performance and Cost Evaluation for a Thermionic Topping Power Plant (77-WA/Ener-7) (A) **My 94**

Energy Consumption
Alternative Aircraft Fuels (78-GT-59) (A) **Jl 94**

Energy Costs
Solar Economics (C) **My 52**

Energy Crisis
Educating the Public (ES) **S 21**
Energy Crisis May Have a Salt Solution (BTR) **D 42**
Thermionic Energy Conversion Topping System (77-WA/Ener-6) (A) **My 94**

Energy Crunch
Cogeneration: Cushioning the Energy Crunch **Ja 83**

Energy Debate
The Debate: A Nuclear Proponent Speaks His Mind (BTR) **Ag 54**

Energy Density Maximization
Stress Analysis and Maximization of Energy Density for a Magnetically Suspended Flywheel (77-WA/DE-24) (A) **Mr 96**

Energy Development
No Love for Lovins (C) **Je 51**
Success of a Big Flop (BTR) **Mr 52**
Utah Governor Discusses Water Crisis (NB) **Mr 65**

Energy Dissipation
An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) (A) **Ja 114**

Energy Efficiency
Aircraft Engines of the Future (ES) **Ag 23**

Energy Efficient Engines
Making Tubofan Engines More Energy Efficient (78-GT-198) (A) **S 76**

Energy Efficient Vehicles Competition
Enter SCORE's Energy Efficient Vehicles Competition (EN) **Mr 66**

Energy Efficiency
DOE Finds Office Buildings Could Cut Energy Use 22 Percent (NR) **Ag 72**

Energy Equations
Energy Equations for Convection in Saturated Porous Media (78-HT-54) (A) **O 97**
Heat Transfer From Axisymmetric Sources at the Surface of a Rotating Disk (78-GT-141) (A) **Ag 114**

Energy Exploitation
Furnace Beneath Your Feet (BTR) **S 47**

Energy Goals
Energy Goals and Coal (ES) **My 20**

Energy Initiatives
Energy Initiatives in Texas (ES) **S 20**

Energy Issue
Understanding the Energy Issue: The Public Needs to Know (NR) **Ja 76**

Energy Management Education
Energy Management Education (ES) **Jl 22**

Energy Method
Analytical Prediction of Three-Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) (A) **My 103**

Energy Options
Power Engineers Assess Energy Options (ES) **F 27**

Energy-Particle Accelerators
On the Trail of the Quark (BTR) **D 37**

Energy Plan
"2.5 Million Solar Homes by '85" (ES) **S 21**

Energy Policies
For More McCormacks (C) **Jl 44**
Of Pandas, Energy Bills, and Other Things (WW) **S 64**
PE's on Energy Policies (ES) **Ap 20**

Energy Policy and Program
Conference Stresses Practical Application of Computer (NR) **My 68**

Energy Policy Role
Intersociety Energy Committee Seeking Larger Role (NR) **S 58**

Energy Problems
Transferring Technology to Solve Energy Problems (78-DET-76) (A) **D 95**

Energy Programs
ESCOE Advises DOE on Energy Programs (NR) **O 64**

Energy Projections
Computerized Energy Projections (ES) **N 21**

Energy Reclamation
"CANWEL"—A Canadian System for Domestic Waste Management and Energy Reclamation (77-WA/Fu-2) (A) **My 92**

Energy Recovery
Commitment Needed (C) **F 52**

Energy Research
Coal and its Consequences (BTR) **My 57**
Combustion of Coal-Oil Slurry in a 100-HP Firetube Boiler (77-WA/Fu-5) (A) **My 93**
Design and Operational Influence on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) (A) **My 97**
House Power from Solar Cells (BTR) **O 56**
ME's Mistake (C) **Ap 46**
Solar Outlook (EN) **Jl 64**

Energy Research and Development
Evaluation of A Water-Cooled Gas Turbine Combined Cycle Plant (78-GT-77) (A) **Ag 105**

Transportation Energy Conservation Data Book (CB) **My 105**

Energy Research and Development Administration (ERDA)
An Analysis of ERDA's National Energy Plan (77-WA/TS-2) (A) **My 96**
Answering CO_2 Questions (ES) **Ja 19**
Converting Coal to Gas (EN) **F 69**
ERDA's Coal-Oil Mixture Combustion Program (77-WA/Fu-4) (A) **My 93**
The High Temperature Water Cooled Gas Turbine in Combined Cycle with Integrated Low Btu Gasification (77-JPGC-GT-7) (A) **Mr 93**
A Low-Risk Approach to the High-Temperature Turbine (77-WA/Ener-10) (A) **My 94**
Tribology R & D Plan **Jl 80**

Energy Resources
Assessing Small Hydropower Resources in the U.S. (EN) **Jl 62**
Geothermal in New Jersey (NB) **O 68**
Peat for Power (BTR) **My 55**
In South Pacific Waters (ES) **Mr 18**

Energy Resources Technology
New ASME Energy Journal **Je 91**

Energy Saver
The Energy Saver Combined Cycle (78-GT-127) (A) **Ag 112**

Energy Savings
Energy Audit for Energy Savings (ES) **Ag 22**

Energy Show
Coming: The Energy Show (IF) **D 48**

Energy Source Minerals
Derivation of Cost Factor for Novel Mining Energy Source Minerals (77-Pet-46) (A) **Ja 103**

Energy Sources
Energy and Materials from Garbage (C) **Mr 48**
The Energy Source Book (CB) **Jl 100**
Heat Pipe Mirrors for High Power Lasers (78-HT-60) (A) **O 98**
Hybrid Geothermal—Fossil Power Plants **D 28**
The Mediterranean - Dead Sea Project (BTR) **F 58**
Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) (A) **Ja 101**
Paddle Wheeler to Harness Current (BTR) **Jl 48**
Pre-engineered Tube Turbine for Hydro Power (BTR) **F 56**
Turbulent Natural Convection in a Horizontal Fluid Layer with Time Dependent Volumetric Energy Sources (78-HT-6) (A) **O 92**
The Wind, a Low-Grade Energy Source (77-WA/Ener-4) (A) **My 93**

Energy Storage
Analysis of Advanced Compressed Air Energy Storage Concepts (78-HT-53) (A) **O 97**
Convective Heat Transfer in Porous Media (78-HT-45) (A) **O 96**
Flywheels Could Double Gas Mileage (BTR) **D 39**
Heat Transfer from Aluminum to HE II—Application to Superconductive Magnetic Energy Storage (78-HT-51) (A) **O 97**
Heat Transfer in Packed Beds at Low Reynolds Number (78-HT-46) (A) **O 97**
For the Latest in Energy Storage, Try the Flywheel **F 38**
RCA's New Energy-Storage Cycle (ES) **D 14**
Thermal Energy Storage Heat Exchanger Design (78-ENAs-30) (A) **D 86**

Energy Storage Turbomachinery
Compressed Air Energy Storage Turbomachinery (78-GT-97) (A) **Ag 108**

Energy Supply-Demand
Energy Supply-Demand Integrations to the Year 2000: Global and National Studies (CB) **F 136**

Energy Systems
Alternative Energy System (C) **My 53**
ASME/CSME and Metal Properties Council Cosponsor PVP Conference (NR) **My 69**
Grid Connected Electrical-Thermal (Cogeneration) Energy System for University of California, Davis, California (78-GT-134) (A) **Ag 112**
R & M Essentials: Proper Methodology, Increased Motivation, Educated Management (NR) **Ap 66**
The Sun Shines Bright on U.S. Industry (ES) **Ja 18**

Energy Technology
Proliferation-Resistant Nuclear Technology (NB) **O 68**

Energy Transfer
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Ma-

chines (77-WA/Prod-1) (A) **My 102**
Energy Transformation
Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) (A) **Jl 88**
Engell, M. A Computer Program for the Design of Turbomachinery Blades (78-GT-36) (A) **Jl 91**
Engelsman, C. *(author)* Heavy Construction Cost File; 1977: Unit Prices (CB) **F 135**
Engh, C. A. *(recipient)* Sylvia W. Farney Scholarship **N 100**
Engine Cost Reduction
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) (A) **Ag 109**
Engine Cycle Analysis
Propulsion Cycle and Configuration Commonality Considerations for Subsonic V/STOL Design (78-GT-88) (A) **Ag 106**
Engine Cycle Pressure
A High Temperature Turbine Research Module (77-GT-73) (A) **Ag 105**
Engine Design
Coming Next: the Hybrid Car (ES) **N 20**
Marine Spey—SM1A Propulsion Module (78-GT-58) (A) **Jl 94**
Novel Auto Engine (BTR) **Ap 54**
Engine Development
Diesel Engine Progress (IF) **N 73**
Engine Field Tests
Industrial Rotary Engine Field Tests (BTR) **Ag 63**
Engine Inlet Extension
An Example of Additive Damping as a Cost Savings Alternative to Redesign (77-WA/GT-2) (A) **Ap 100**
Engine Modification
The Centaur Engine: Operational Progress Report (78-GT-159) (A) **Ag 116**
Engine Health Monitoring System
An Analysis Procedure for the Validation of On-Site Performance Measurements of Gas Turbines (78-GT-152) (A) **Ag 115**
Engine Monitoring Systems
Military Engine Usage Monitoring Developments in the United Kingdom (78-GT-65) (A) **Jl 95**
Engine Pollutants Emission
The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) (A) **Ag 106**
Engine Reliability
Time-Phased Development Methodology-The Key For Reliable Engines In Future Military Aircraft Weapon Systems (78-GT-167) (A) **Ag 116**
Engine System
Stirling Engine Development (BTR) **Jl 49**
Engine Testing
Development of the Garrett GTPF990—A 5000-Horsepower Marine and Industrial Gas Turbine Engine (78-GT-44) (A) **Jl 92**
Dynamic Response Testing of Gas Turbines (78-GT-31) (A) **Jl 90**
Turbine Blade Tip Clearance Measurement Utilizing Borescope Photography (78-GT-164) (A) **Ag 116**
Engine Thrust
Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**
Engine Variations
Measurement of Emissions Variability of a Large Turbofan Aero-Engine (78-GT-75) (A) **Ag 105**
Engineer-in-Training Review
Mechanical Engineering for Professional Engineers' Examinations Including Questions and Answers for Engineer-in-Training Review (CB) **S 78**
Engineering
Alaska Pipeline Honored (NB) **Je 75**
Availability Engineering for Coal-Fired Power Projects (78-PVP-12) (A) **O 102**
Decision-Making for Safety and Health **Je 81**
Engineering - A Social Force **Je 34**
Formulating an International Contract for Engineering and Technical Services (77-WA/Mgt-4) (A) **My 25**
Introducing Engineering to High School Girls (EN) **Ja 78**
Special Engineering Problems of TFTR (77-WA/NE-4) (A) **Je 106**
World Metric Standards for Engineering (CB) **D 96**
Engineering Alternatives
Power System Economics: on Selection of Engineering Alternatives (77-JPGC-Pwr-7) (A) **Mr 88**
Engineering Colleges
Technology, the University and the Community: A Study of the Regional Role of Engineering Colleges (CB) **Ja 116**
Engineering Computer Services
Engineering Computer Services (NB) **D 58**
Engineering Degree Programs
Charlie's Angels or a Ph.D.? (C) **Ap 46**
Engineering Design
Advances in Frost Heave Prediction and Mitigation Methods for Pipeline Application (77-WA/HT-19) (A) **AP 103**
The Effect of Material Constitutive Models on Stress Wave Propagation Calculations (77-WA/Mat-8) (A) **Je 109**
Engineering Design Interfaces: A Management Philosophy (CB) **Je 113**
Fort Hood Goes Solar (ES) **Jl 22**
A Generalized Decomposition Procedure and its Application to Engineering Design (77-DET-62) (A) **Ja 113**
A Major Methanol Facility (ES) **Jl 22**
Engineering Development
Reducing Costs With Coordinated Advanced Design and Production Techniques (78-DE-9) (A) **S 72**
Ten Years' Engineering Development in Gas Turbine Driven Natural Gas Compressor Stations (78-GT-74) (A) **Jl 95**
Engineering Education
Celebrating George Washington's Call for Engineering Education (NB) **Ap 73**
Executives Land Support to Engineering at Thayer (EN) **My 78**
Gas Turbine Education and Research Programs in German Universities (78-GT-171) (A) **Ag 117**
Master's Degree Program to Cross Disciplinary Lines (EN) **Mr 66**
New Directions in Engineering Education **Jl 38**
New Directions in Engineering Education Suggestions for Developed Countries (77-WA/TS-6) (A) **My 99**
SDRC Receives Award for Educational Film Series (EN) **Jl 63**
The Use of Gas Turbine Laboratories in Teaching Engineering and Non-Engineering Students (78-GT-180) (A) **S 75**
Engineering Employment
Meeting Will Discuss Trends in Engineering Employment (NR) **D 57**
Engineering Enrollments
Engineering Enrollments Up (EN) **D 59**
Engineering Environment
Communications and the Engineering Environment **Ag 24**
Engineering Ethics
A National Project on Philosophy and Engineering Ethics **F 73**
Engineering Exposition and Seminar
Connecticut Engineers Plan Expo (NR) **O 68**
Engineering Graduates
Change: The Grass Roots of a Technological Society **My 81**
Graduate Science Enrollment Stabilized in 1977 (EN) **O 69**
Job Prospects Improve for Some College Graduates (EN) **My 74**
Job Prospects Still Good (EN) **F 68**
Engineering Hemodynamics
Engineering Hemodynamics: Application to Cardiac Assist Devices (CB) **My 106**
Engineering Institute
Rice Engineering Institute (EN) **Jl 62**
Engineering Loans
Loan Fund for Women in Engineering Studies (EN) **Mr 66**
Engineering Management
Twenty-Sixth Engineering Management Conference Set for October (NR) **S 60**
Engineering Managers
Employer's Expectation of Test Engineers (77-WA/DE-29) (A) **Mr 96**
Engineering Materials
Structure and Properties of Engineering Materials (CB) **My 106**
Engineering Minorities
Bethlehem Steel Launches Minorities Program (EN) **Jl 63**
Minorities in Engineering Symposium Sets 5 Year Goal (EN) **D 59**
Engineering Personnel
Effective Technology Transfer—From Laboratory to Production Line **Ap 32**
Engineering Problems
Computational Methods for the Solution of Engineering Problems (CB) **Ag 119**
Engineering Profession
The Atomic Power Insurance Act Violates The Constitution of The United States (77-WA/TS-5) (A) **My 98**
Goals for the Engineering Profession (TL) **My 104**
The Holocaust and the Engineering Profession **O 75**
NSPE Political Action Committee (NR) **Je 74**
Regrettable Remark? (C) **Jl 41**
Tentative Steps Toward an Umbrella Organization (NR) **Je 70**
Unity Stand Supported (C) **Jl 41**
Useful Unity Overview (C) **Jl 41**
Engineering Progress
Research of the XF3-1 Turbofan Engine (78-GT-199) (A) **S 76**
Engineering Recruiting
Recruiting Hits New High, Bachelor's Engineers Favored (EN) **N 80**
Engineering Registration
Defining Engineers (C) **N 56**
Entering Muddy Waters (C) **My 53**
Heated Words on "Hot Topics" (C) **Jl 42**
Opposed to P.E. Registration (C) **N 58**
On the P.E. Process (C) **S 46**
Professionally Speaking (C) **Mr 46**
Registration Observations (C) **Mr 46**
Registration: Why Fight It? (C) **O 45**
Engineering Research Grants
Ford Research Grant (EN) **Ap 75**
Engineering Responsibility
A Call for a Technological High Command **Jl 68**
Kudos for Kezios (C) **Ag 23**
For Plain Good Character (C) **Mr 46**
Engineering Societies
The Case for a United Engineering Society **Ap 22**
Engineering Societies' Newsletter
ESCOE Newsletter Available (NR) **N 79**
Engineering Societies Unification
Improving Organizational Cross-Links (C) **Ag 49**
Engineering Specialists
Fusion Engineering Program (EN) **Ap 74**
Engineering Work Measurement
Engineering Work Measurement (CB) **My 106**
Engineers
Appropriate Technology—Past and Future (77-WA/TS-8) (A) **My 99**
Being Successful as an Engineer (CB) **D 97**
Engineers See Blackouts Likely in 2-10 Yr (NB) **S 59**
1978 Engineers Public Affairs Forum (NR) **My 71**
Guide to Short Courses (EN) **F 69**
Law and the Engineer **F 46**
Status of Minority and Women Ph.D.'s in the 1970s (EN) **F 68**
Who Will Accept Responsibility? (C) **Jl 42**
Engineers' Design Responsibility
A Case for the P.E.'s Design Responsibility (PS) **Ap 79**
Engineers Joint Council
Conference on Engineering Personnel, preview (NR) **D 57**
Engineers' Responsibility
Professional Freedom for Responsible Practice (PS) **O 76**
Engineers' Salaries
Higher Starting Salaries for May UMC Grades (EN) **Ap 74**
Salary Yardstick (C) **Jl 45**
Engines
Electronic Controls of Gas Turbine Engines in Fighting Vehicles (78-GT-48) (A) **Jl 93**
Recent Developments in Sensors for the Gas Turbine Engine (78-GT-52) (A) **Jl 94**
A Rotating Stall Control System for Turbojet Engines (78-GT-115) (A) **Ag 109**
Vector Loop Analysis of Wankel Compressors or Engines (78-DET-1) (A) **D 87**
Enhancement Mechanism
Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**
Enrick, N. L. *(author)* Quality Control for Profit (CB) **Je 113**
Environment
Cementing Through Permafrost Environment (77-Pet-37) (A) **Ja 102**
Environmental Assessments
Environmental Assessments and Statements (CB) **F 135**
Environmental Barriers
The Surface Condenser as an Environmental Barrier (78-JPGC-Pwr-17) (A) **D 83**
Environmental Behavior
The Influence of Material Variability on the Predicted Envi-

ronmental Behavior of Composite Materials (77-WA/Mat-9) (A) **Je 109**

Environmental Control System

Active Thermal Control Subsystem Development (78-ENAs-6) (A) **N 110**

The Application of Foil Air Bearing Turbomachinery in Aircraft Environmental Control System (78-ENAs-18) (A) **N 111**

The F-16 Environmental Control System (78-ENAs-11) (A) **N 112**

Mineral Waste Disposal Options (NB) **My 72**

Environmental Design

The Master Builders: A History of Structural and Environmental Design from Ancient Egypt to the 19th Century (CB) **My 106**

Environmental Impact

An Analysis of ERDA's National Energy Plan (77-WA/TS-2) (A) **My 98**

Economic and Environmental Costs of Satellite Solar Power **Ja 32**

Environmental Impact Statements: A Guide to Preparation and Review (CB) **Jl 101**

Prospects for the Gas Turbine in the U.K. Gas Transmission System (78-GT-53) (A) **Jl 94**

Environmental Movement

Simulation—A Key to Improved Design (A Progress Report on a Case Study) (78-DE-10) (A) **S 73**

Environmental Pollution

Pollution Evaluation: The Quantitative Aspects (CB) **Jl 100**

Environmental Problems

Topics and Terms in Environmental Problems (CB) **Ag 119**

Environmental Protection Agency

Ambient Ground-Level Sulfur Dioxide Concentrations in the Vicinity of a Multiple Stack Power Plant During and After Operation (77-WA/APC-4) (A) **My 102**

ASME Urges EPA to Go Slowly on Drinking Water Filtration (NR) **D 52**

Coal and its Consequences (BTR) **My 57**

Efficient Cleaning of Hot Gases (ES) **Jl 22**

The "Great Water Pik Debate" (WW) **Je 79**

TVA vs. EPA (ES) **F 27**

Environmental Research

Parks for Environmentalists (ES) **Mr 19**

Environmental Standards

The Compact Industrial Gas Turbine—Recent Technical Improvements (78-GT-41) (A) **Jl 91**

Environmental Standards Need Cost/Benefit Analysis **F 32**

Environmental Studies

Offshore Environmental Study (BTR) **Ag 61**

Power's Effect: A Case Study (ES) **F 26**

Environmental Systems

Active Thermal Control Subsystem Development (78-ENAs-6) (A) **N 110**

Advanced Environmental Cooling Concepts for Supersonic Aircraft (78-ENAs-21) (A) **N 112**

Animal Life Support Transporters for Shuttle/Spacelab (78-ENAs-10) (A) **N 112**

The Application of Foil Air Bearing Turbomachinery in Aircraft Environmental Control Systems (78-ENAs-18) (A) **N 111**

An Approach to Solving Controls Compartment Heating Problems on Air-Launched Missiles (78-ENAs-12) (A) **N 111**

Atmosphere Cloud Physics Laboratory Thermal Control (78-ENAs-9) (A) **N 111**

A Biphysical Model for Evaluating Auxiliary Heating and Cooling Systems (78-ENAs-33) (A) **N 113**

Challenges to Life Support System's Future (78-ENAs-28) (A) **N 113**

The Dependence of the CO_2 Removal Efficiency of LiOH on Humidity and Mesh Size (78-ENAs-5) **N 110**

Design Considerations for Dry Ice Garments (78-ENAs-32) (A) **N 113**

Development of Rescue and Escape Breathing Apparatus Based on a Chlorate Candle Oxygen Source (78-ENAs-1) (A) **N 110**

Dry-Ice, Liquid-Pulse-Pump, Portable Cooling System (78-ENAs-41) (A) **D 87**

ECLSS Definition for a Low-Cost Space Construction Base (78-ENAs-15) (A) **N 112**

Environmental Systems Conference in San Diego (NR) **Je 74**

The European Life Sciences Experiments on Board the First Spacelab Mission (78-ENAs-24) (A) **N 112**

Environmental Monitoring Data Aquisition Computer System (EMD-ACS) (77-WA/APC-3) (A) **My 102**

An Experimental Cooling Loop for Spacelab Payloads (78-ENAs-27) (A) **N 113**

Extended Duration Orbiter Life Support Definition (78-ENAs-43) (A) **D 87**

Extended Duration Orbiter Life Support System Options (78-ENAs-31) (A) **N 113**

Fabrication and Test of a 70 K Heat Pipe Radiator F-18 Air Conditioning System (78-ENAs-23) (A) **N 112**

The F-16 Environmental Control System (78-ENAs-11) (A) **N 112**

Firefighters Integrated Response Equipment System (78-ENAs-39) (A) **N 113**

Food Packages for Space Shuttle (78-ENAs-13) (A) **N 111**

Heat Transfer Augmentation Using a Corona Discharge Air Jet (78-ENAs-8) (A) **N 111**

Instrumentation for Controlling and Monitoring Environmental Control and Life Support Systems (78-ENAs-40) (A) **D 87**

Life Sciences Experiments in the First Spacelab Mission (78-ENAs-26) (A) **N 113**

Life Sciences Experiments Mission Development Test Program (78-ENAs-36) (A) **N 114**

Life Sciences in the Shuttle Era (78-ENAs-34) (A) **N 114**

Life Support Systems for Biological Specimens in the Shuttle/ Spacelab (78-ENAs-38) (A) **N 114**

A Lightweight, Positive Pressure Rescue Breathing Apparatus (78-ENAs-35) (A) **D 86**

Limitations on Water Production in the Iron-Catalyzed Bosch Process (78-ENAs-4) (A) **N 110**

Liquid Metal Heat Pipe Performance in the Presence of a Transverse Magnetic Field (78-ENAs-10) (A) **N 112**

Low-Grade Thermal Energy-Conversion Joule Effect Heat Engines (78-ENAs-7) (A) **N 110**

Microbial Check Valve for Shuttle (78-ENAs-27) (A) **N 112**

Molten-Carbonate CO_2 Concentrator: Preliminary Experiments (78-ENAs-2) (A) **N 110**

Physiological Requirements for Design of Environmental Control Systems: Control of Heat Stress in High-Performance Aircraft (78-ENAs-22) (A) **N 113**

Shuttle Orbiter Water Spray Boiler (78-ENAs-17) (A) **N 112**

The Spacelab Flight Unit Environmental Control/Life Support System (78-ENAs-14) (A) **N 111**

Support System Considerations for STS Biological Investigations (78-ENAs-37) (A) **N 114**

Test Evaluation of Space Station ECLSS Maintenance Concepts (78-ENAs-43) (A) **D 87**

Thermal Energy Storage Heat Exchanger Design (78-ENAs-30) (A) **D 86**

A Thermoelectric Integrated Membrane Evaporation System (78-ENAs-19) (A) **N 112**

Vestibular Function Research Aboard Spacelab (78-ENAs-25) (A) **N 112**

Water Electrolysis System: H_2 and O_2 Generation (78-ENAs-3) (A) **N 110**

Ephraim, M., Jr. The New Electric Locomotives **Ja 43**; New Electric Locomotive (C) **Mr 48**

Epicylic Gears

Kinematics of an Epicyclic Gear Pump (78-DET-13) (A) **D 88**

Epicyclic Rotary Pumps

Design Analysis of an Epicyclic Rotary Pump Mechanism (78-DET-46) (A) **D 92**

Epoxy Seal Ring

Three High-Pressure Component Failures (78-Mat-3) (A) **O 98**

Eppink, A. Emphasis on Practical (C) **Ja 50**

Epstein, H. I. Design of Pontoons for Floating Roofs (78-PVP-111) (A) **N 124**

Equal Rights Amendment

SWE Conventions Go Only to ERA States (NR) **Ja 75**

Equipment Design

The Influence of Market Research on Product Design and Materials Selection (78-DE-3) (A) **S 72**

A New Wrinkle to Diaphragm Couplings (77-DET-128) (A) **F 127**

Equipment Efficiency

A High-Effectiveness Regenerator Design Concept (78-GT-78) (A) **Ag 105**

Equipment Maintenance

Seminar and Forum Planned with National Material Handling Show (NR) **My 71**

Equipment Repairs

Testing of FFTF Fuel Handling Equipment (77-WA/NE-9) (A) **Je 101**

Equipment Reliability

Power Plant Equipment Reliability (78-JPGC-Pwr-8) (A) **D 83**

Erdman, A. G. A Closed-Form Numerical Algorithm for the Periodic Response of High-Speed Elastic Linkages (78-DET-15) (A) **D 89**; A Computationally Efficient Numerical Algorithm for the Transient Response of High-Speed Elastic Linkages (78-DET-54) (A) **D 93**; On the Existence of Circle-Point and Center-Point Circles for Three Precision-Point-Dyad Synthesis (78-DET-44) (A) **D 91**; Kinematics of Jaw Growth (77-WA/Bio-15) (A) **Ap 99**; Rapid Algorithms for Kinematic and Dynamic Analysis of Planar Rigid Linkages with Revolute Joints (78-DET-64) (A) **D 94**

Erdogan, F. The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) (A) **Je 108**; A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) (A) **Jl 98**

Erdol, R. A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) (A) **Jl 98**

Erian, F. F. Heat Transfer From Axisymmetric Sources at the Surface of a Rotating Disk (78-GT-141) (A) **Ag 114**

Erosion

Chromizing and Turbine Solid Particle Erosion (78-JPGC-Pwr-7) (A) **D 83**

Erosion-Corrosion Effects on Boiler Tube Metals in a Multisolids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**

Erosion and Its Effect on a Water-Cooled Turbine (78-GT-123) (A) **Ag 111**

Erosion Study in Turbomachinery Affected by Coal Ash Particles (78-GT-136) (A) **Ag 113**

An Investigation of Turbine Erosion by Combustor Generated Carbon in a Lightweight Marine Gas Turbine (78-GT-96) (A) **Ag 107**

Rock Breakage with Pulsed Water Jets (77-Pet-78) (A) **Ja 106**

Erosion Resistance

Transpiration Air Protected Turbine Blades—An Effective Concept to Achieve High Temperature and Erosion Resistance for Gas Turbines Operating in an Aggressive Environment (78-GT-100) (A) **Ag 108**

Errichello, R. Bending Stress in Gear Teeth Having Circular Arc Profiles—Part I: Analysis (77-DET-52) (A) **Ja 112**; Part II: Experimental Investigation (77-DET-53) (A) **Ja 112**; Standard-Pitch Gearing **Ap 40**; (77-DET-56) (A) **Ja 112**

Escape Breathing Apparatus

Development of Rescue and Escape Breathing Apparatus Based on a Chlorate Candle Oxygen Source (78-ENAs-1) (A) **N 110**

Eskeli, M. Too Little Too Late? (C) **N 56**

Estes, J. C. Techniques of Pilot-Scale Drilling Research (77-Pet-68) (A) **Ja 105**

Esmailzadeh, E. Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) (A) **Ja 108**

Ethanol Meniscus

An Evaporating Ethanol Meniscus: Part 1—Experimental Studies (78-HT-29) (A) **O 95**

Ethics

A National Project on Philosophy and Engineering Ethics **F 73**

Ethyl Alcohol

Ethyl Alcohol as Fuel (EN) **O 71**

Etsion, I. Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) (A) **Mr 87**; Nonaxisymmetric Imcompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) (A) **Mr 87**

Ettles, M. McC. The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) (A) **Ja 111**

Euclid's Algorithm

An Alternative to Euclid's Algorithm (78-DET-41) (A) **D 92**

Eulerian-Langrangian Method

A Coupled Eulerian-Lagrangian Method for Analyzing Nonlinear Fluid-Structure Interaction Transient in Reactors (78-PVP-58) (A) **N 119**

European Radwaste Technology

Application of European Radwaste Technology in North America (78-NE-16) (A) **N 115**

Evaluation Program

Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) (A) **Ag 114**

Evaluation Technique
An Evaluation Technique for Determining the Cost Effectiveness of Condition Monitoring Systems (78-GT-166) (A) **Ag 116**
Evans, D. M. Gas Turbine Combustor Cooling by Augmented Backside Convection (78-GT-33) (A) **Jl 90**
Evans, G. H. Natural Convection from a Vertical Isothermal Surface Imbedded in a Saturated Porous Medium (78-HT-55) (A) **O 97**
Evans, R. B. Essergy (C) **Ja 50**
Evaporating Ethanol Meniscus
An Evaporating Ethanol Meniscus: Part 1—Experimental Studies (78-HT-29) (A) **O 95**
Evaporating Mass Stream
Experimental Study of Evaporation and Breakdown of Thin Liquid Films Driven by Shear Stresses (77-WA/HT-7) (A) **Ap 102**
Evaporation
Critical Steady-State Heat Fluxes Causing Melting or Evaporation of the Anode in a High Intensity Arc (78-HT-10) (A) **O 93**
A Thermoelectric Integrated Membrane Evaporation System (78-ENAs-19) (A) **N 112**
Evaporative Heat Transfer
Evaporative Heat Transfer and Pressure Drop Performance of Internally-Finned Tubes with Refrigerant 22 (77-WA/HT-25) (A) **Ap 104**
Evaporator Tubes
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) (A) **Je 101**
Evaporators
Evolution of Radwaste Evaporators in West Germany (77-JPGC-NE-13) (A) **Mr 91**
Evensen, D. A. Model Verification of Mixed Dynamic Systems (77-DET-85) (A) **F 123**
Exchange Students
Training Programs Needed (EN) **N 80**
Exchanger Effectiveness
The Effect of Nonuniform Fluid Flow Distribution on Thermal Performance of Crossflow Heat Exchanger ("7-WA/HT-3) (A) **Ap 101**
Excitation Spectra
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Radio (77-DET-66) (A) **Ja 113**
Exciting Force
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) (A) **Ja 114**
Executive Recruiting
All or Nothing at All (NB) **O 88**
Executives
Executives Land Support to Engineering at Thayer (EN) **My 76**
Getting Executives Involved in Microprocessor Selection (NB) **Mr 65**
More Engineers are Becoming Corporate Chiefs (NR) **Ja 75**
Exhaust Emissions
Development of a Compact Gas Turbine Combustor to Give Extended Life and Acceptable Exhaust Emissions (78-GT-146) (A) **Ag 114**
Influences on Exhaust Emissions From Automotive Gas Turbines (78-GT-85) (A) **Ag 106**
Exhaust Hood
Aerodynamic Testing of a Low Stimulus, Efficient Exhaust Hood-Industrial Turbines (77-JPGC-Pwr-2) (A) **Mr 88**
Exhaust Pressure
Selecting an Optimum Rating for Feedpump Turbine Drivers (78-JPGC-Pwr-4) (A) **D 82**
Exhaust Systems
Marine Gas Turbine Inlet and Exhaust Systems for the R.N. (78-GT-190) (A) **S 75**
Exley, J. T. Subsonic Compressible Conical Diffuser Flow Analysis (77-WA/FE-2) (A) **Ap 93**
Expanded Trade Relations
GDR Unveils its Technology (NB) **Ag 74**
Expansion
The Elastic-Plastic Behavior of a Tube During Expansion (78-PVP-112) (A) **N 125**
Experimental Breeder Reactors
Maintenance Experience with Sodium Systems at Experimental Breeder Reactor II (EBR-II) (78-JPGC-NE-5) (A) **D 84**
Experimental Investigation
Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Ends (77-Pet-42) (A) **Ja 101**
Explosion Welding
Explosion Welding **Ily 28**
Explosives
Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) (A) **Ja 106**
Export Campaign
Selling in Japan (NB) **O 68**
Exposure Measurement Program
Occupational Exposure Measurement Program at Millstone-2 (77-JPGC-NE-16) (A) **Mr 91**
Extended Duration Orbiter
Extended Duration Orbiter Life Support Definition (78-ENAs-42) (A) **D 87**
Extended Duration Space Flights
A Thermoelectric Integrated Membrane Evaporation System (78-ENAs-19) (A) **N 112**
Extended Mixing-Length Hypothesis
Extended Mixing-Length Hypothesis Application to Transpired or Roughwall Compressible Boundary Layers (78-HT-22) (A) **O 94**
External Bending
The Effect of Thickness Variations on the Behaviour of Smooth Curved Pipes Under External Bending (78-PVP-93) (A) **N 123**
External Pressure
Stability Design Criteria for Vessels Subjected to Concurrent External Pressure and Longitudinal Compressive Loads (78-PVP-110) (A) **N 125**
Extinction Limits
Weak Extinction Limits of Turbulent Flowing Mixtures (78-GT-144) (A) **Ag 114**
Extraterrestrial Intelligence Search
Search for Extraterrestrial Intelligence (BTR) **My 54**
Extration Plant
New Gas Liquefaction Project (IF) **Ap 65**
Extrusion
Theory of Linear Continuous Extrusion Linex (77-WA/Prod-17) (A) **Je 105**
Ezekoye, L. I. A Simplified Method for Calculating the Natural Frequency of Valve Superstructures (78-PVP-4) (A) **O 102**

F

Fabian, J. M. Analysis of Flows within Particle Separators (77-WA/FE-21) (A) **Ap 96**
Fabri, J. Growth of a Perturbation in an Axial Flow Compressor (78-GT-30) (A) **Jl 90**
Fabrication Techniques
Simplified Design with Graphite-Reinforced Plastics **Je 38**
Face Seals
Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) (A) **Mr 87**
Phase Change in Liquid Face Seals (77-Lub-12) (A) **Mr 85**
Facial Appearance
Kinematics of Jaw Growth (77-WA/Bio-15) (A) **Ap 99**
Factory Trash
Heat and Air Conditioning from Factory Trash (BTR) **Ja 58**
Faeth, G. M. Heat Transfer and Mean Structural of a Turbulent Thermal Plume Along Vertical Isothermal Wall (77-WA/HT-30) (A) **Ap 104**; Structure of a Turbulent Thermal Plume Rising Along an Isothermal Wall (78-GT-24) (A) **O 94**
Fahim, A. E. F. Characteristics of a Novel Pneumatic Stepping Motor (77-WA/Fcs-7) (A) **Ap 97**
Fahmy, M. A. K. Wear of Gears of Double Circular-Arc Tooth-Profile (77-DET-59) (A) **Ja 113**
Failure Analysis
Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) (A) **Je 110**
Structural and Mechanical Design of Tokamaks (77-WA/NE-2) (A) **Je 100**
Failure Criteria
Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) (A) **Je 110**
Failure Mechanisms
Application of a Finite Element Computer Program for Investigating Failure Mechanisms in Military Ammunition (77-WA/DE-20) (A) **Mr 96**
Failure Mode Study
Geothermal Drill Bit Improvement—Specific Application to the Geysers (77-Pet-67) (A) **Ja 105**
Failure Modes
Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) (A) **Je 109**
Failure Prediction
An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) (A) **Mr 94**
Faletti, D. W. Approximate Analysis of Heat Transfer from the Surface of a Wet Finned Heat Exchanger (78-HT-28) (A) **O 94**
Falsetti, H. L. Left Ventricular Area Ratios: Comparison of the Circumferential and Longitudinal Directions and Correlation with Left Ventricular Function (77-WA/Bio-11) (A) **Ap 99**
Fan Rotors
A Design Point Correlation for Losses due to Part-Span Dampers on Transonic Rotors (78-GT-153) (A) **Ag 115**
Fan Vibration
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) (A) **Ag 110**
Farag, I. H. Radiative Heat Transmission from Nonluminous Gases. Computational Study of the Emissivities of Carbon Dioxide (78-HT-16) (A) **O 94**
Fasiczka, F. G. Thermal Response of Slabs Subjected to Nonsymmetric Convective Heat Transfer (78-DE-8) (A) **S 72**
Fast Breeder Reactors
Must We Forego Plutonium? (C) **D 36**
Thermal/Hydraulic Design of Dry-Saturated Steam Evaporators for a Large Fast Breeder Reactor Plant (78-JPGC-NE-7) (A) **D 85**
Fast Flux Test Facility
Development of Small Sodium Valves for the Fast Flux Test Facility (77-WA/NE-13) (A) **Je 102**
Fast Flux Test Facility Pump-Thermal Analysis Verification (77-WA/NE-14) (A) **Je 102**
Maintenance and Requalification of a Large LMFBR Component (78-JPGC-NE-1) (A) **D 84**
Fast Reactors
Use of Thorium in Power Reactors (77-JPGC-NE-24) (A) **Mr 92**
Fasteners
Cold-Head Miniature Fasteners (BTR) **D 44**
Fastening System
Reducing "Engineering Overkill" (BTR) **Ja 65**
Fatigue
Application of Damage Concepts to Predict Creep-Fatigue Failures (78-PVP-26) (A) **O 104**
Elimination of a Resonant Fatigue Problem for Major Maintenance Benefits (77-DET-135) (A) **F 127**
Low-Cycle Fatigue and Ultimate Strength Related to Gear Design (77-DET-66) (A) **Ja 113**
Spring Fatigue Recommended Design Stresses (78-DE-5) (A) **S 73**
A Technique for Assessing the Running Life of Thermoplastic Conveyor Chains (77-DET-160) (A) **F 129**
Fatigue Behavior
Difference Between Rolling Fatigue Behaviors of Surface Hardened and of Soft Steel Rollers (77-DET-57) (A) **Ja 112**
Fatigue Characteristics
On the Design of Surface Durability of Rolling-Sliding Contact Surface (77-DET-115) (A) **F 125**
Fatigue Crack Growth
Analysis of a Canister Closure Design by Damage Tolerance Concepts (78-PVP-108) (A) **N 125**
The Effect of Cycle Shape on Creep-Fatigue Interaction in Austenitic Stainless Steels (78-PVP-89) (A) **N 122**
Fatigue Crack Growth Model for Part-Through Flaws in Plates and Pipes (78-Mat-9) (A) **O 99**
Frequency Effects in the Elevated Temperature Crack Growth Behavior of Austenitic Stainless Steel—A Design Approach (78-PVP-97) (A) **N 123**
Significance of Delta Ferrite Content to Fatigue Crack Growth Resistance of Austenitic Stainless Steel Weld Deposits (78-PVP-9) (A) **O 102**
Fatigue Crack Propagation
Fatigue Crack Propagation in 8 and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) (A) **Je 109**
Fatigue Crack Propagation of Short Cracks (78-Mat-7) (A) **O 100**
Fatigue Damage Accumulation
Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16)

(A) **Mr 95**

Fatigue Data
Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) (A) **Je 110**

Fatigue Evaluation
Summarization and Comparison of Freight Car Truck Load Data (77-WA/RT-3) (A) **Mr 84**

Fatigue Evaluator
The Turbine Fatigue and Creep Evaluator Determination of Cumulative Low-Cycle Fatigue and Creep from Steam Turbine Operational Measurements (77-JPC-Pwr-3) (A) **Mr 88**

Fatigue Life
Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) (A) **Mr 87**

Fatigue Life Criteria
The Practical Significance of Designing to Gear Pitting Fatigue Life Criteria (77-DET-122) (A) **F 126**

Fatigue Life Determination
Residual Fatigue Life Determination of Anchor Bolts (78-Mat-8) (A) **O 99**

Fatigue Life Prediction
A Study of Thermal Fatigue Life Prediction of Air-Cooled Turbine Blades (78-GT-63) (A) **Ji 95**

Fatigue Strength
Bending Fatigue Strength of Gear Teeth under Random Loading (77-DET-120) (A) **F 126**

Fatigue Tests
Low-Cycle Cumulative Damage with Two-Strain Repeated Blocks on a Stainless Steel at High Temperature (78-PVP-88) (A) **N 122**

Faulkner, L. L. Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-67) (A) **Ja 114**; Vibration and Noise Reduction of Beams and Plates by Use of Boundary Damping and Stiffness (77-DET-155) (A) **F 129**

Faulted Conditions
Evaluation of the Functional Capability of ASME Section III Class 1, 2 and 3 Piping Components (78-PVP-83) (A) **N 122**

Faupel, J. H. Elections to Fellow Grade **Je 97**

Fawcett, J. N. Control of Clearance Effects (77-WA/DE-2) (A) **Mr 93**; An Experimental Investigation of the Dynamic Behavior of a Roller Chain Drive (77-DET-168) (A) **F 130**

Federal Trade Commission
Coal's Not Controlled (ES) **Ja 18**

Feed Pump
Selecting an Optimum Rating for Feedpump Turbine Drivers (78-JPGC-Pwr-4) (A) **D 82**
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) (A) **Ja 110**

Feedback Mechanism
Column Separation as a Feedback Mechanism in Liquid Oscillators (77-WA/Fcs-4) (A) **Ap 96**

Fehring, T. H. Economic Analysis of Boiler Feed Pump Drive Alternatives (77-JPGC-Pwr-8) (A) **Mr 88**

Feistauer, M. Flow in an Annular Axial-Radial Diffuser (78-GT-133) (A) **Ag 112**

Feldman, K. T., Jr. Cost-Effectiveness Study of Heat Pipe Heat Exchangers (77-WA/HT-5) (A) **Ap 101**

Felix, M. P. Design of an Elastic Wind Tunnel Model of a Tall Office Building Using a Finite Element Computer Code (77-WA/DE-6) (A) **Mr 94**

Felix, P. C. Problems and Operating Experiences with Gas Turbines Burning Residual and Crude Oils (78-GT-103) (A) **Ag 108**

Fellow Status
What is a Fellow? (PS) **F 72**

Fellowship Program
Fellowships in India (EN) **O 71**

Fellowships
Engineering Research Grants and Fellowships (NR) **O 65**

Fenders
New Fender Covered by Thick, Tough, Elastomer (BTR) **F 57**

Feng, T. T. Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) (A) **Ja 111**

Ferrante, A. J. *(author)* Computational Methods for the Solution of Engineering Problems (CB) **Ag 119**

Ferrara, A. A. Thermal Energy Storage Heat Exchanger Design (78-ENAs-30) (A) **D 86**

Ferrara, P. L. Vibrations in Very High Pressure Centrifugal Compressors (77-DET-15) (A) **Ja 108**

Fettahlioglu, O. A. Effect of Transverse Shearing Deformations on the Coupled Twist-Bending of Curved Beams (78-PVP-102) (A) **N 124**

Fiber Beards
A New Hooked Needle Device for Forming Fiber Beards for Length and Strength Measurement (77-Tex-2) (A) **F 131**

Fiber Optic Cable
Data Link Uses Fiber Optic Cable (BTR) **O 49**

Fiber Optics
The Expanding Industry Horizons for Fiber Optics **Ja 20**
Turbine Blade Tip Clearance Measurement Utilizing Borescope Photography (78-GT-164) (A) **Ag 116**

Fiber Size
An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) (A) **F 131**

Fiberglass Wrap
An Example of Additive Damping as a Cost Savings Alternative to Redesign (77-WA/GT-2) (A) **Ap 100**

Fiberizing Mechanism
Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) (A) **Je 106**

Fibre Optic Illumination
Instrument Design for Vitreous Surgery Via the Pars Plana (77-WA/Bio-1) (A) **Mr 97**

Fichter, E. F. Algebraic Throchoids—Classification, Transformations, and Certain Properties (78-DET-57) (A) **D 93**; Degree of the Input-Output Equations of Certain Geared Five-Bar Mechanisms (78-DET-27) (A) **D 90**

Field Coils
A Pulsed Homopolar Machine with Superconducting Field Coils (77-WA/HT-35) (A) **My 99**

Field Engineering
One Manufacturer's View of Gas Turbine Service (78-GT-49) (A) **Ji 93**

Field Experience
The Centaur Engine: Operational Progress Report (78-GT-159) (A) **Ag 116**

Field Measurement
The Torsional Response of Compressor Shaft Systems During Synchronous Motor Startups. Part II—Field Measurement Techniques (77-Pet-60) (A) **Ja 104**

Filippi, F. An Experiment Cooling Loop for Spacelab Payloads (78-ENAs-29) (A) **N 113**

Fillets
Optimum Design of Fillets in Flat and Round Tension Bars (77-DET-45) (A) **Ja 112**

Film Bearing
The Dynamics of Multi-Rotor Systems Supporting on Oil Film Bearings (77-DET-29) (A) **Ja 111**
An Investigation Into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) (A) **Mr 86**

Film Breakdown
Experimental Study of Evaporation and Breakdown of Thin Liquid Films Driven by Shear Stresses (77-WA/HT-7) (A) **Ap 102**

Film-Cooled Blading
Profile Loss Characteristics and Heat Transfer of Full Coverage Film-Cooled Blading (78-GT-98) (A) **Ag 108**

Film Cooled Turbine Vane
Cooling Characteristics of Film Cooled Turbine Vane Having Multi-Row of Ejection Holes (78-GT-21) (A) **Ji 89**

Film Cooling
Effect of Mainstream Variables on Jets Issuing From a Row of Inclined Round Holes (78-GT-138) (A) **Ag 113**
Film Cooling Effectiveness for Injection From Multirow Holes (78-GT-32) (A) **Ji 90**

Film Dampers
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) (A) **Ja 110**
An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) (A) **Ja 110**
Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) (A) **Ja 109**

Film Thickness
Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) (A) **F 132**

Films
Microporous Polyolefin Films (BTR) **Ja 64**

Filter Demineralizers
An Evaluation of New Filter/Demineralizer Precoat Materials (78-JPGC-NE-16) (A) **D 16**

Filter System
Charged Filters Could Cut Pollution Costs by 80 Percent (EN) **Je 76**

Filters
The Horizontal Plate Filter as a Torsional Vibration System with Vibration Absorption (77-DET-86) (A) **F 123**

Fin Solar Collector
Radiant Exchange for a Fin and Tube Solar Collector (78-HT-33) (A) **O 96**

Fin Temperature
Heat Transfer Distribution on Annular Fins (78-HT-30) (A) **O 96**

Finch, R. D. Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) (A) **Mr 84**

Findlay, G. E. The Effect of Thickness Variations on the Behaviour of Smooth Curved Pipes Under External Bending (78-PVP-93) (A) **N 123**

Fine-Metering Valves
Analytical Approach for the Design of Fine-Metering Valves (77-WA/FE-24) (A) **Ap 96**

Finite Amplitude Benard Convection
Finite Amplitude Benard Convection of Purely Radiating Fluids (78-HT-40) (A) **O 96**

Finite Amplitude Instability
Finite Amplitude Instability and Penetrative Convection in a Rotating Fluid (78-HT-39) (A) **O 96**

Finite Amplitude Solutions
Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) (A) **O 96**

Finite-Difference Method
A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**
The Longitudinal Water Boundary Layer Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**

Finite Element
The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transients (77-WA/HT-14) (A) **Ap 103**
Free Vibration of Thin Rectangular Plates by a Mixed Finite Element (77-DET-143) (A) **F 128**

Finite Element Analysis
Dynamic Finite Element Analysis of Cracked Bodies (78-PVP-94) (A) **N 123**
Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**
Finite Element Analysis of Bourdon Tubes (79-PVP-67) (A) **N 119**
Finite Element Analysis of a Cylinder-to-Plate Intersection (78-PVP-17) (A) **O 103**
Finite Element Analysis of a Large Ridge Inert Atmosphere Creep Test Specimen (78-PVP-7) (A) **O 102**
Grid Selection and Refinement Procedures in Finite Element Analysis (78-DE-21) (A) **O 97**
Stable Postbuckling Equilibria of Axially Compressed, Elastic Circular Cylindrical Shells: A Finite-Element Analysis and Comparison With Experiments (77-WA/APM-9) (A) **Ji 97**
A Three-Dimensional Finite Element Analysis of the Double Torsion Test (78-PVP-96) (A) **N 123**
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) (A) **O 102**

Finite Element Calculation Program
An Integrated Quasi-3D Finite Element Calculation Program for Turbomachinery Flows (78-GT-56) (A) **Ji 94**

Finite Element Computer Codes
Design of an Elastic Wind Tunnel Model of a Tall Office Building Using a Finite Element Computer Code (77-WA/DE-6) (A) **Mr 94**
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) (A) **Je 101**

Finite Element Computer Program
Application of a Finite Element Computer Program for Investigating Failure Mechanisms in Military Ammunition (77-WA/DE-20) (A) **Mr 96**

Finite-Element Displacement Formulation
Forced Response of Stiffened Plates (77-DET-150) (A) **F 129**

Finite Element Mesh Generation
A Graphic Man-Computer Environment for Three-Dimensional Engineering Design (77-DET-117) (A) **F 126**

Finite-Element Methods
Application of the Finite Element Method to the Inverse Heat

Conduction Problems (77-WA/TM-4) (A) **My 96**

Dynamic Response of Packets of Blades by the Finite Element Method (77-DET-70) (A) **Ja 114**

The Finite Element Method (CB) **Je 114**

On the Flutter Instability of a Suspension Bridge Using the Finite Element Method (77-DET-140) (A) **F 128**

A New Approximate Approach for Elastic Body Contact in Roller Bearings (78-DE-18) (A) **S 74**

Quasi-Eulerian Finite Element Formulation for Fluid-Structure Interaction (78-PVP-60) (A) **N 119**

On the Use of Strain Energy Density Fracture Criterion in the Design of Gears Using Finite Element Method (77-DET-157) (A) **F 158**

Vibro-Impact Responses of a Tube with Tube-Baffle Interaction (78-PVP-20) (A) **O 103**

Finite Element Models

Determination of the Critical Operating Speeds of Planar Mechanisms by the Finite Element Method Using Planar Actual Line Elements and Lumped Mass Systems (78-DET-37) (A) **D 91**

Nonlinear Transient and Spectrum Response Seismic Analysis of a Reactor Coolant Pump (78-PVP-36) (A) **O 105**

Finite Element Stress

Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) (A) **Mr 92**

Finite Element Stress Analysis

Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) (A) **Ap 92**

Dynamic Stability of Fixed-Fixed and Free-Free Timoshenko Beams Resting on an Elastic Foundation (77-DET-134) (A) **F 127**

Finite Element Technique

A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) (A) **Je 104**

Finite Geometry Solids

Stress Analysis and Stress-Intensity Factors for Finite Geometry Solids Containing Rectangular Surface Cracks (77-WA/APM-5) (A) **Jl 97**

Finite Length Plates

Application of an Eigenfunction Expansion to the Determination of Stress-Intensity Factors (77-WA/GT-1) (A) **Ap 100**

Finite Line Elements

Elastodynamics of Planar Mechanisms Using Planar Actual Finite Line Elements, Lumped Mass Systems Matrix-Exponential Method, and the Method of "Critical-Geometry-Kineto-Elasto-Statics" (CGKES) (78-DET-26) (A) **D 89**

Finite Plate Methods

Thermal Transient Stress Analysis of Cylinder-to-Cylinder Structures by the Finite Plate Method (78-PVP-76) (A) **N 120**

Finite Point Sets

Chebychev Approximations of Finite Point Sets with Application of Planar Kinematic Synthesis (78-DET-25) (A) **D 90**

Finite Thickness Plates

A Procedure for Estimating the Stress Intensity Factor of a Flattened Surface Crack at a Nozzle Corner (78-PVP-95) (A) **N 123**

Finite Thin Cylindrical Shell

Response of a Finite Thin Cylindrical Shell of Graphite Materials to a Thermal Shock (77-WA/HT-9) (A) **Ap 102**

Finite Time Settling Control

Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) (A) **Je 103**

Finite Wall Temperature

Periodic Temperature of a Finite Wall Subjected to Periodic Heat Flux and Exposed to a Fluid with Periodic Temperature Variation (77-WA/Sol-6) (A) **My 97**

Fink, H. I. Locating Pipe Supports for Combined Thermal and Seismic Loading (77-PVP-63) (A) **Ja 108**

Finkelstein, A. R. Turbine Blade Tip Clearance Measurement Utilizing Borescope Photography (78-GT-164) (A) **Ag 116**

Finned Heat Exchanger

Approximate Analysis of Heat Transfer from the Surface of a Wet Finned Heat Exchanger (78-HT-26) (A) **O 94**

Finned Tubes

Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**

Fiorito, R. J. Wide Range Operation of Advanced Low NO_x Aircraft Gas Turbine Combustors (78-GT-128) (A) **Ag 112**

Firbank, T. C. On the Forces Between the Belt and Driving Pulley of a Flat Belt Drive (77-DET-161) (A) **F 130**

Fire Resistant Fluids

Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) (A) **F 132**

Fire Safety Standards

New Fire Safety Standards (ES) **O 47**

Fired Heater Performance

A Method for Predicting Fired Heater Performance (77-Pet-10) (A) **Ja 100**

Firefighters Integrated Response Equipment System

Firefighters Integrated Response Equipment System (78-ENAs-39) (A) **N 113**

Firetube Boiler

Combustion of Coal-Oil Slurry in a 100-HP Firetube Boiler (77-WA/Fu-5) (A) **My 93**

Fisher, E. A. Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) (A) **Ja 106**

Fisher, U. A Proposed Scheme for Computer Aided Design and Manufacture of Radial Turbine Rotors (78-GT-156) (A) **Ag 115**

Fistere, J. Design of a Family of Packages for a 7500-kW Industrial Gas Turbine (78-GT-37) (A) **Jl 91**

Fit Confidence

Confidence In Fits **Mr 29**

Fit Design

Confidence in Fits (C) **My 53**

Fit Devices

Confidence in Fits (77-DET-130) (A) **F 127**

Fitch, C. Output Circuit Selection and Output Feedback in Fluid Logic Synthesis (77-WA/Fics-11) (A) **Ap 98**

Fitzpatrick, G. O. Performance and Cost Evaluation for a Thermionic Topping Power Plant (77-WA/Ener-7) (A) **My 94**

Five-Bar Mechanisms

Degree of the Input-Output Equations of Certain Geared Five-Bar Mechanisms (78-DET-27) (A) **D 90**

Fivel, H. J. Liquid Metal Heat Pipe Performance in the Presence of a Transverse Magnetic Field (78-ENAs-20) (A) **N 112**

Fixed Tubesheets

An Analytical Method for Fixed Tubesheet Heat Exchangers and Its Experimental Verification (78-PVP-77) (A) **N 120**

Flame Characteristics

Flame Characteristics of a NASA Contra Swirler Module (78-GT-163) (A) **Ag 116**

Flame Hardening

Feasibility Study of On-Site Flame Hardening of Rail (78-RT-8) (A) **O 91**

Flameholders

Jet Curtain Flameholder for Aircraft Afterburners (78-GT-95) (A) **Ag 107**

Flanged Inner Ring

The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearings (77-Lub-8) (A) **F 133**

Flank Angles

Synthesis of the Four-Bar Mechanisms for the Generation of Symmetrical "V" Shaped Coupler Curves of Specified Flank Angles for Linkage-Geneva Mechanisms (78-DET-52) (A) **D 91**

Flank Wear Model

Flank Wear Model of Cutting Tools Using Control Theory (77-WA/Prod-20) (A) **Je 105**

Flat Belt Drive

On the Forces Between the Belt and Driving Pulley of a Flat Belt Drive (77-DET-161) (A) **F 130**

Performance of Composite Flat Belt Drive Materials Under Simulated Power Transmission (77-DET-167) (A) **F 130**

Flat Belt Dynamics

Flat Belt Dynamics, Including Viscoelastic Effects (77-DET-166) (A) **F 130**

Flat Plate

Extended Mixing-Length Hypothesis Application to Transpired or Roughwall Compressible Boundary Layers (78-HT-22) (A) **O 94**

Flat Plate Blades

A Rational Analysis of Periodic Flow Perturbation in Supersonic Two-Dimensional Cascade (78-GT-176) (A) **S 74**

Flat Plate Solar Collectors

Design of a Combined Solar Collector/Absorber/Desorber for a Solid-Absorption Refrigerating System (78-HT-35) (A) **O 95**

Design of High-Efficiency Flat Plate Solar Collectors for Space and Water Heating (78-DE-7) (A) **S 73**

A "No-Flow" Method for Measuring Solar Collector Performance (77-WA/Sol-5) (A) **My 97**

Solar Heating Made Easy (EN) **Jl 64**

Solar Mega-Plant (BTR) **S 52**

Flat Plates

Current Meter Corrections for Turbulence (77-WA/FM-3) (A) **Ap 100**

Flat-Plate Heat Pipe (BTR) **O 51**

Heat Transfer Augmentation Using a Corona Discharge Air Jet (78-ENAs-8) (A) **N 111**

Laminar Shear Layer Due to a Semi-Infinite Thin Flat Plate Oscillating with Zero Mean Velocity (77-WA/FE-16) (A) **Ap 95**

Flat-Sector-Pad Thrust Bearing

Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) (A) **Mr 87**

Flat Tension Bars

Optimum Design of Fillets in Flat and Round Tension Bars (77-DET-45) (A) **Ja 112**

Flaw Detector

Acoustic Flaw Detector (BTR) **O 52**

Flaw Tolerance Evaluation

Flaw Tolerance Evaluation of Heat Affected Zones (78-Mat-14) (A) **O 100**

Fleeter, S. Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) (A) **Ag 109**

Fleishman, L. A. JETFOIL In-Service Experience (78-GT-91) (A) **Ag 107**

Flexible Platform Dynamics

Dynamics of a Neutrally Buoyant Inflatable Oceanographic Platform (77-DET-139) (A) **F 128**

Flexible Rotor

Steady-State Unbalance Response of a Three Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) (A) **F 124**

Flexible Rotors

A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) (A) **Ja 109**

Flexible Shaft Couplings

Experimental Investigation of Performance Characteristics of Flexible Shaft Couplings (77-DET-129) (A) **F 127**

Flexible Shafts

How to Design and Utilize Flexible Shafts in Products (78-DE-22) (A) **S 73**

Flexibility Analysis

Flexibility Analysis of Buried Pipe (78-PVP-82) (A) **N 121**

Flexible Bladed Disks

Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) (A) **Ag 109**

Flexible Piping Systems

Comparison of ICEPEL Predictions with Single Elbow Flexible Piping System Experiment (78-PVP-55) (A) **N 118**

Flexural Fatigue

Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) (A) **Mr 86**

Flexural Vibrations

Flexural Vibrations of Rotating Electromagnetic Shields (77-WA/DE-15) (A) **Mr 95**

Flight Control System

Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**

Flight Unit Environmental Control System

The Spacelab Flight Unit Environmental Control/Life Support System (78-ENAs-14) (A) **N 111**

Floating Factories

Floating Factories for the Amazon (BTR) **Mr 50**

Floating Platforms

Dynamically Damped Floating (77-Pet-58) (A) **Ja 104**

Floating Roofs

Design of Pontoons for Floating Roofs (78-PVP-111) (A) **N 124**

Floating Vessel

A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) (A) **Ja 102**

Flooding

An Automatic Blending and Injection System for Tertiary Oil Recovery by Chemical Flooding (77-Pet-44) (A) **Ja 103**

Flow

Aerodynamic Force and Moment on Oscillating Airfoils in

Cascade (78-GT-181) (A) **S 75**
Aeroelastic Stability Analysis of Supersonic Cascades (78-GT-151) (A) **Ag 115**
Analysis of Pneumatically Driven Double-Acting Reciprocating Pumps (78-DE-19) (A) **O 91**
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) (A) **Ag 109**
An Average Flow Model for Determining Effects of Three Dimensional Roughness on Partial Hydrodynamics Lubrication (77-Lub-17) (A) **Mr 86**
Boundary Layer Calculation for Analysis and Design (77-WA/FE-25) (A) **Ap 96**
Buoyancy Induced Convection Flow in Porous Media with Heat Source (78-HT-57) (A) **O 98**
A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**
Compressible Flow in a Centrifugal Impeller with Separation: A Two-Dimensional Calculation Method (77-WA/FE-8) (A) **Ap 94**
Computations of Three-Dimensional Gas-Turbine Combustion Chamber Flows (78-GT-142) (A) **Ag 114**
Computer Aided Design of Mixed Flow Turbines for Turbochargers (78-GT-191) (A) **S 76**
Cross Flow Induced Vibrations in a Tube Bank (78-PVP-25) (A) **O 104**
Crossflow-Induced Vibration of a Row of Circular Cylinders in Water (77-JPGC-NE-4) (A) **Mr 90**
Decay of the Argon Plasma Jet Surrounded by Ar, He, N_2 and H_2 Gases (78-HT-12) (A) **O 93**
The Development of a Rotating Liquid Helium Flow Circuit (77-WA/HT-37) (A) **My 99**
Direct Blade Force Measurements in Transonic Cascade Flows (78-GT-45) (A) **Jl 93**
Disk Pump Performance in Turbulent Flow (77-WA/FE-26) (A) **Ap 96**
Dynamic Response of a Circular Cylinder Subjected to Liquid Cross Flow (78-PVP-15) (A) **O 103**
The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Cascades (77-WA/FE-5) (A) **Ap 93**
Effect of Scaling on Switching Time of Bistable Amplifiers (77-WA/Flcs-5) (A) **Ap 97**
The Effect of a Transversely Injected Stream on the Flow Through Turbine Cascades: Part 3—Influence of Aspect Ratio (78-GT-24) (A) **Jl 89**
Experimental Studies of Tube Fretting in Steam Generators and Heat Exchangers (78-PVP-22) (A) **O 103**
An Experimental Study of Diagonal Flow Propeller Pump: Design Performance with Various Types of Blading (77-WA/FE-9) (A) **Ap 94**
Experimental Study on Flow in a Supersonic Centrifugal Impeller (78-GT-2) (A) **Jl 87**
Finite Amplitude Instability and Penetrative Convection in a Rotating Fluid (78-HT-39) (A) **O 96**
Flow in an Annular Axial-Radial Diffuser (78-GT-133) (A) **Ag 112**
Flow in the Inlet Plenum Feature Model of the Clinch River Breeder Reactor (77-WA/FE-19) (A) **Ap 98**
Flow Model Test Development of CRBRP Intermediate Heat Exchanger (77-JPGC-NE-10) (A) **Mr 90**
A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) (A) **Ap 94**
Flow in a Toroidal Thermosyphon with Angular Displacement of Heated and Cooled Sections (78-HT-44) (A) **O 97**
Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) (A) **Mr 86**
For the Latest in Energy Storage, Try the Flywheel **F 38**
Growth of a Perturbation in an Axial Flow Compressor (78-GT-30) (A) **Jl 90**
Heat Transfer From Axisymmetric Sources at the Surface of a Rotating Disk (78-GT-141) (A) **Ag 114**
Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (77-WA/HT-4) (A) **Ap 101**
Heat Transfer in a Pipe Rotating Around A Perpendicular Axis (77-WA/HT-39) (A) **My 99**
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) (A) **F 123**
Integrable Generalized Wave Equations Exhibiting a Hypoelastic Compressible Rate-Sensitive Material Flow (77-WA/APM-2) (A) **Je 111**
An Integrated Quasi-3D Finite Element Calculation Program for Turbomachinery Flows (78-GT-56) (A) **Jl 94**
Interacting Turbulent Boundary Layer Over a Wavy Wall (77-WA/HT-28) (A) **Ap 104**
Investigation of Heat Transfer Between an Electric Arc and a Turbulent Gas Flow in a Channel (78-HT-8) (A) **O 92**
Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) (A) **Jl 88**
Jet Curtain Flameholder for Aircraft Afterburners (78-GT-95) (A) **Ag 107**
Limit Analysis of Hollow Disk Forging Part 1: Upper Bound (77-WA/Prod-2) (A) **My 103**
Limits of Rotating Stall and Stall in Vaneless Diffuser of Centrifugal Compressors (78-GT-19) (A) **Jl 88**
Linear Stability of Jet Flows (77-WA/APM-10) (A) **Je 111**
Longitudinal Vortices in a Horizontal Boundary Layer in Water Including the Effects of the Density Maximum at 4°C (78-HT-25) (A) **O 94**
Managing the Flow of Technology (CB) **F 134**
The Near-Field Disturbance Created by a Body in a Stratified Medium With a Free Surface (77-WA/APM-18) (A) **Jl 98**
Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**
A Numerical Method for Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) (A) **Je 107**
A Numerical Investigation of Three-Dimensional Flows in a Rotating Duct by a Partially-Parabolic Procedure (77-WA/FE-7) (A) **Ap 94**
Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **Jl 87**
A Planar Fluidic Flowmeter Applicable to Respiratory Flows (77-WA/Flcs-1) (A) **Ap 97**
Propagation of Inlet Flow Distortions Through an Axial Compressor Stage (78-GT-34) (A) **Jl 91**
Radial Vaneless Diffusers: A Re-Examination of the Theories of Dean and Senoo and of Johnston and Dean (78-GT-186) (A) **S 75**
Radiative Transfer in Hartmann MHD Flow (78-HT-18) (A) **O 94**
Rationalization of Empirical Loss Coefficients and Their Application In One Dimensional Performance Prediction Procedures for Centrifugal Compressors (78-GT-177) (A) **S 75**
Spectral Analogy Between Temperature and Velocity Fluctuations in Various Turbulent Flows (78-HT-2) (A) **O 92**
Steady Pressure Gradient Assisted Plane Couette Flow with Temperature Dependent Viscosity (78-HT-28) (A) **O 95**
Subsonic Compressible Conical Diffuser Flow Analysis (77-WA/FE-2) (A) **Ap 93**
Study of Lubrication Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) (A) **F 124**
Thermal Development of Flow in the Entrance Region of a Channel with Periodic Boundary Conditions (78-HT-27) (A) **O 95**
Through Flow Analysis of Centrifugal Compressors (78-GT-110) (A) **Ag 109**
Turbulence Scales in a Pipe Flow with a Slightly Heated Wall (78-HT-4) (A) **O 92**
Two-Phase Flow on the Shell-Side of a Segmentally Baffled Shell-and-Tube Heat Exchanger (77-WA/HT-22) (A) **Ap 103**
Vaneless Diffuser Flow with Extremely Distorted Inlet Profile (78-GT-47) (A) **Jl 92**
A Quasi-Three Dimensional Analysis of Choking Flow of Radial Gas Turbines (78-GT-132) (A) **Ag 112**

Flow Analysis
Analysis of Flows Within Particle Separators (77-WA/FE-21) (A) **Ap 96**
Performance Investigations of Large Capacity Centrifugal Compressors (78-GT-3) (A) **Jl 87**

Flow Analysis Methods
A Proposed Scheme for Computer Aided Design and Manufacture of Radial Turbine Rotors (78-GT-156) (A) **Ag 115**

Flow Compressor
Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-GT-185) (A) **S 75**

Flow Conditions
Influence of Static and Dynamics Asymmetric Loading Conditions on Silo Design (77-DET-145) (A) **F 128**
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) (A) **Ag 115**
Vaned Diffuser Inlet Flow Conditions for a High Pressure Ratio Centrifugal Compressor (78-GT-50) (A) **Jl 93**

Flow Diffuser
Experimental Study on Diffusers for Mixed-Flow Machines (78-GT-120) (A) **Ag 110**

Flow Distribution
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) (A) **Ag 106**
An Experimental Evaluation of the Flow Distribution in the CRBRP Modular Steam Generator (77-JPGC-NE-12) (A) **Mr 91**
Intermediate Heat Exchanger Development for the Clinch River Breeder Reactor Plant (77-WA/NE-10) (A) **Je 101**

Flow Field
Aerodynamic Development of Stages for Industrial Centrifugal Compressors. Part 1: Testing Requirements and Equipment—Immediate Experimental Evidence (78-GT-4) (A) **Jl 87**
Analysis of the Flow Field in a Radial Compressor (78-GT-7) (A) **Jl 87**
The Effects of Streamline Curvature on Reynolds Analogy (77-WA/FE-17) (A) **Ap 95**
Experimental Study of an Axial Compressor Rotor Transfer Function with Nonuniform Inlet Flow (78-GT-69) (A) **Jl 96**
Numerical Solutions for Laminar Orifice Flow (77-WA/FE-13) (A) **Ap 95**
The Three-Dimensional Flow and Blade Wake in an Axial Plane Downstream of an Axial Compressor Rotor (78-GT-66) (A) **Jl 95**

Flow Measurement
Effects of Joule Heating on Plasma Heat Transfer (78-HT-11) (A) **O 93**
Laser Flow Measurement (77-WA/FM-2) (A) **Ap 100**

Flow Meter
Coriolis/Gyroscopic Flow Meter (77-WA/FM-4) (A) **Ap 100**

Flow Nozzles
Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) (A) **Ap 100**

Flow Oscillations
First-Order Pump Surge Behavior (77-WA/FE-12) (A) **Ap 95**

Flow Patterns
Investigation Concerning Rotating Stall and Surge Phenomena within Centrifugal Compressor Channels (78-GT-9) (A) **Jl 87**

Flow Perturbation
A Rational Analysis of Periodic Flow Perturbation in Supersonic Two-Dimensional Cascade (78-GT-176) (A) **S 74**

Flow Rate
Analytical Approach for the Design of Fine-Metering Valves (77-WA/FE-24) (A) **Ap 96**
Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**
Profile Loss Characteristics and Heat Transfer of Full Coverage Film-Cooled Blading (78-GT-98) (A) **Ag 108**

Flow Transition
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) (A) **F 133**

Flow-Type Manufacturing Systems
Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/Prod-32) (A) **Je 107**

Flow Velocity
Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) (A) **F 122**

Flower, R. J. Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) (A) **Jl 89**

Flowers, W. C. Feasibility of an Active Control Scheme for Above Knee Prostheses (77-WA/Bio-8) (A) **Ap 98**

Flowing Mixtures
Weak Extinction Limits of Turbulent Flowing Mixtures (78-GT-144) (A) **Ag 114**

Flowmeter
Acoustic Radiation from a Venturi Type Flowmeter Due to Hydrodynamic Excitation (LWBR Development Program) (77-DET-165) (A) **F 130**

Fluctuating Temperature Measurements
Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) (A) **My 96**

Flue Gas
TVA's Cocurrent Scrubber Evaluation (77-WA/APC-8)

(A) **My 102**

Flue Gas Desulfurization

The Effectiveness of Flue Gas Desulfurization Systems in Reducing Power Plant Ambient Air Quality Impacts (77-JPGC-Pwr-6) (A) **Mr 88**

Operating Experience with Three 20-MW Prototype Flue Gas Desulfurization Processes (78-JPGC-Pwr-12) (A) **D 83**

Fluget, C. W. Test Evaluation of Space Station ECLSS Maintenance Concepts (78-ENAs-43) (A) **D 87**

Fluid Amplifiers

Jet Partitioned Fluid Amplifiers (77-WA/Flcs-2) (A) **Ap 97**

Fluid Bed Combustion

Conceptual Design of a Coal-Fueled, Fluid Bed Combined Cycle Power Plant (77-WA/Ener-11) (A) **My 95**

Fluid Control Circuits

Computer Simulation of Fluid Control Circuits (77-Wa/Flcs-6) (A) **Ap 97**

Fluid Control Systems

Characteristics of a Novel Pneumatic Stepping Motor (77-WA/Flcs-7) (A) **Ap 97**

Column Separation as a Feedback Mechanism in Liquid Oscillators (77-WA/Flcs-4) (A) **Ap 96**

Computer Simulation of Fluid Control Circuits (77-WA/Flcs-6) (A) **Ap 96**

Design and Dynamic Performance of a Hydromechanical Impact Breaker (77-WA/Flcs-3) (A) **Ap 97**

Dynamic Analysis of a High-Speed Electrohydraulic Transient Rod Drive System (77-WA/Flcs-8) (A) **Ap 97**

Effect of Scaling on Switching Time of Bistable Amplifiers (77-WA/Flcs-5) (A) **Ap 97**

Jet Partitioned Fluid Amplifiers (77-WA/Flcs-2) (A) **Ap 97**

A Network Approach to Brake Pipe Leakage (77-WA/Flcs-10) (A) **Ap 97**

Output Circuit Selection and Output Feedback in Fluid Logic Synthesis (77-WA/Flcs-11) (A) **Ap 98**

A Planar Fluidic Flowmeter Applicable to Respiratory Flows (77-WA/Flcs-1) (A) **Ap 97**

The Stability of the Three-Way Underlapped Hydraulic Spool Servovalve (77-WA/Flcs-9) (A) **Ap 98**

Quiet Vane Valve Design and Airborne Noise Spectra (77-WA/Flcs-12) (A) **Ap 98**

Fluid Density

Force Systems Acting on Arbitrarily Directed Tubular Members in the Sea (77-Pet-38) (A) **Ja 102**

Fluid Dynamics

Aerodynamic Development of Stages for Industrial Centrifugal Compressors. Part 2: Test Data Analysis, Correlation and Use (78-GT-5) (A) **Jl 87**

On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) (A) **Jl 90**

Flow in the Inlet Plenum Feature Model of the Clinch River Breeder Reactor (77-WA/FE-19) (A) **Ap 96**

Fluid Film Bearings

Some Experiments on Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) (A) **Ja 109**

Fluid Film Force

Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) (A) **Mr 86**

Fluid Film Thickness

Determining Minimum Film Thickness for Ball Bearings (BTR) **F 56**

Fluid Flow

Subsonic Compressible Conical Diffuser Flow Analysis (77-WA/FE-2) (A) **Ap 93**

Fluid Flow Distribution

The Effect of Nonuniform Fluid Flow Distribution on Thermal Performance of Crossflow Heat Exchanger (77-WA/HT-3) (A) **Ap 101**

Fluid Forces

Fluid Forces in Real Heat Exchanger Tube Vibrations (77-DET-146) (A) **F 128**

Fluid Layer

Turbulent Natural Convection in a Horizontal Fluid Layer with Time Dependent Volumetric Energy Sources (78-HT-6) (A) **O 92**

Fluid Leakage

Effects of Fluid Leakage on Performance of a Centrifugal Compressor (78-GT-143) (A) **Ag 114**

Fluid Logic Synthesis

Output Circuit Selection and Output Feedback in Fluid Logic Synthesis (77-WA/Flcs-11) (A) **Ap 98**

Fluid Mechanics

Teaching of the Fluid Mechanics of Turbomachines (78-GT-161) (A) **Ag 116**

Fluid Meters

Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) (A) **Ap 100**

Coriolis/Gyroscopic Flow Meter (77-WA/FM-4) (A) **Ap 100**

Current Meter Corrections for Turbulence (77-WA/FM-3) (A) **Ap 100**

Fluid Pressure

Shuttle Orbiter Water Spray Boiler (78-ENAs-17) (A) **N 112**

Fluid-Structure Interactions

A Coupled Eulerian-Lagrangian Method for Analyzing Nonlinear Fluid-Structure Interaction Transient in Reactors (78-PVP-58) (A) **N 119**

Fluid-Structure Interaction Calculations for Cylinders Impacting a Water Pool (78-PVP-59) (A) **N 119**

Quasi-Eulerian Finite Element Formulation for Fluid-Structure Interaction (78-PVP-60) (A) **N 119**

Fluid Transients

A Numerical Method Based on the Method of Characteristics for Two-Dimensional Fluid Transients (78-PVP-57) (A) **N 118**

Fluid Velocity

Laser Flow Measurement (77-WA/FM-2) (A) **Ap 100**

Fluid Viscoelasticity

An Investigation into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) (A) **Mr 86**

Fluidelastic Vibration

Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) (A) **F 123**

Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) (A) **F 122**

Fluidic Flowmeter

A Planar Fluidic Flowmeter Applicable to Respiratory Flows (77-WA/Flcs-1) (A) **Ap 97**

Fluidic Switching

Space Charge Reduction in EHD Via Fluidic Switching (77-WA/Ener-3) (A) **My 93**

Fluidized Bed

A Milestone for Fluidized Bed (ES) **N 21**

Fluidized Bed Combustion

Search for Clean Coal Power (BTR) **D 41**

Fluidized-Bed Combustor

Erosion-Corrosion Effects on Boiler Tube Metals in a Multisolids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**

Fluids

Double-Diffusive Instability in a Density-Stratified Fluid Along a Heated Inclined Wall (78-HT-43) (A) **O 97**

Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) (A) **F 132**

Finite Amplitude Benard Convection of Purely Radiating Fluids (78-HT-40) (A) **O 96**

A Passive Technique for Enhancing Thermal Stratification in Liquid Storage Tanks (78-HT-50) (A) **O 97**

Periodic Temperature of a Finite Wall Subjected to Periodic Heat Flux and Exposed to a Fluid with Periodic Temperature Variation (77-WA/Sol-6) (A) **My 97**

Transient Temperature Measurement in Moving Fluids (77-WA/TM-3) (A) **My 96**

Water Waves in a Nonhomogeneous Incompressible Fluid (77-WA/APM-27) (A) **Jl 99**

Fluids Engineering

Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) (A) **Ap 94**

Analysis of Flows within Particle Separators (77-WA/FE-21) (A) **Ap 96**

Analytical Approach for the Design of Fine-Metering Valves (77-WA/FE-24) (A) **Ap 96**

Boundary Layer Calculation for Analysis and Design (77-WA/FE-25) (A) **Ap 96**

The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (A) **Ap 93**

Compressible Flow in a Centrifugal Impeller with Separation: A Two-Dimensional Calculation Method (77-WA/FE-8) (A) **Ap 94**

Disk Pump Performance in Turbulent Flow (77-WA/FE-26) (A) **Ap 96**

The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Cascades (77-WA/FE-5) (A) **Ap 93**

The Effects of Streamline Curvature on Reynolds Analogy (77-WA/FE-17) (A) **Ap 95**

An Experimental Investigation of Cavitating Inducer Instability (77-WA/FE-14) (A) **Ap 95**

An Experimental Investigation of a Three-Dimensional Turbulent Boundary Layer (77-WA/FE-22) (A) **Ap 96**

An Experimental Study of Diagonal Flow Propeller Pump: Design Performance with Various Types of Blading (77-WA/FE-9) (A) **Ap 94**

Fifth ASME Freeman Scholar Program in Fluids Engineering, preview **N 98**

First-Order Pump Surge Behavior (77-WA/FE-12) (A) **Ap 95**

Flow in the Inlet Plenum Feature Model of the Clinch River Breeder Reactor (77-WA/FE-19) (A) **Ap 96**

A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) (A) **Ap 94**

Laminar Shear Layer Due to a Semi-Infinite Thin Flat Plate Oscillating with Zero Mean Velocity (77-WA/FE-16) (A) **Ap 95**

A Numerical Investigation of Three-Dimensional Flows in a Rotating Duct by a Partially-Parabolic Procedure (77-WA/FE-7) (A) **Ap 94**

Numerical Solutions for Laminar Orifice Flow (77-WA/FE-13) (A) **Ap 95**

Optimizing Turbine Stage Efficiency by Selecting and Matching Reaction, Velocity Ratio, and Clearance Ratio (77-WA/FE-10) (A) **Ap 94**

Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) (A) **Ap 94**

A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) (A) **Ap 95**

Subsonic Compressible Concial Diffuser Flow Analysis (77-WA/FE-2) (A) **Ap 93**

Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) (A) **Ap 94**

On Vortex Wind Power (77-WA/FE-20) (A) **Ap 96**

A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) (A) **Ap 96**

A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) (A) **Ap 95**

Flurscheim, C. H. *(author)* Engineering Design Interfaces: A Management Philosophy (CB) **Je 113**

Flutter Instability

On the Flutter Instability of a Suspension Bridge Using the Finite Element Method (77-DET-140) (A) **F 128**

Flutter Vibratory Patterns

Synthesis of Blade Flutter Vibratory Patterns Using Stationary Transducers (78-GT-160) (A) **Ag 116**

Flywheels

Flywheels (C) **My 51**

Free-Wheeling Flywheel (BTR) **Jl 47**

Miliamps Go A Long Way (BTR) **Ja 54**

Optimum Design of the Homogeneous Plane-Stress Flywheel (77-DET-112) (A) **F 125**

Stress Analysis and Maximization of Energy Density for a Magnetically Suspended Flywheel (77-WA/DE-24) (A) **Mr 96**

Stress Redistribution for the Multiring Flywheel (77-WA/DE-26) (A) **Mr 95**

Flywheel Hybrid Transmissions

Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) (A) **Je 102**

Fodor, E. V. *(recipient)* Sylvia W. Farny Scholarship **N 100**

Fogal, G. L. Atmosphere Cloud Physics Laboratory Thermal Control (78-ENAs-9) (A) **N 111**

Fohey, M. F. Food Packages for Space Shuttle (78-ENAs-(A) **N 111**

Foil Air Bearing Turbomachinery

The Application of Foil Air Bearing Turbomachinery in Aircraft Environmental Control Systems (78-ENAs-18) (A) **N 111**

Foil Bearings

F-18 Air Conditioning System (78-ENAs-23) (A) **N 112**

Food Packages

Food Packages for Space Shuttle (78-ENAs-13) (A) **N 111**

Foord, C. A. Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) (A) **Ag 110**

Fopiano, P. J. Heat Treatment, Structure, and Properties of Standard and Modified Vasco X-2 Carburizing Grade Gear Steels (77-DET-151) (A) **F 129**

Force Analysis

The Kinematic and Force Analysis of Upper Extremity-Orthosis Systems (78-DET-51) (A) **D 93**

Topological Reaction Force Analysis (78-DET-58) (A) **D 93**

Force Fields

Quasi-Bifurcation in Dynamics of Elastic-Plastic Continua (77-WA/APM-3) (A) **Je 111**

Force Measurement System

Direct Blade Force Measurements in Transonic Cascade Flows (78-GT-45) (A) **Jl 93**

Force Systems
Force Systems Acting on Arbitrarily Directed Tubular Members in the Sea (77-Pet-38) (A) **Ja 102**
Force Transducer
On the Forces Between the Belt and Driving Pulley of a Flat Belt Drive (77-DET-161) (A) **F 130**
Force Variation
Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) (A) **Je 106**
Forced Convection
An Analysis of Nonsimilar Boundary Layer Containing Liquid-Droplets Over a Heated Circular Cylinder (78-HT-20) (A) **O 94**
Forced Response
Forced Response of Stiffened Plates (77-DET-150) (A) **F 129**
Forced Vibration
Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) (A) **Ja 115**
Forced Vibration of Continuous System with Nonlinear Boundary Conditions (77-DET-80) (A) **Ja 114**
The Forced Vibration of a Three-Layer Damped Circular Ring (77-DET-154) (A) **F 129**
Forced Vibration Testing
Forced Vibration Testing of a Nuclear Fuel Assembly (77-DET-141) (A) **F 128**
Forcing Functions
Spring of the Ring (77-DET-125) (A) **F 126**
Ford, H. Thoughts on a Code of Practice for Forged High Pressure Vessels of Monobloc Design (78-PVP-62) (A) **N 119**
Ford, R. A. J. Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) (A) **Ag 110**
Foreign Engineering Student
The Frustrating Plight of Foreign Students (NB) **Ja 77**
Foreign Imports
Imports—The Machine Tool Industry's Achilles' Heel (NR) **Ja 73**
Forest Wastes
Fuel Pellets from Forest Wastes (ES) **Ag 22**
Forged Vessels
Design, Manufacture and Safety Aspects of Forged Vessels for High-Pressure Services (78-PVP-72) (A) **N 120**
Forging Grade Steels
Effects of Irradiation on A508 Class 2 and 3 Forging Grade Steels (78-Mat-21) (A) **O 101**
Forging Industry
Fuel Pellets from Forest Wastes (ES) **Ag 22**
Seamless Rolled Ring Forgings (BTR) **Ag 56**
Forging Lubricants
Attributes of an Ideal Water-Base, Nonpolluting Hot Forging Lubricant (77-Lub-33) (A) **Mr 87**
Form Closure
Mechanics of Form Closure (78-DET-32) (A) **D 90**
Formation Water
Well-Hole Temperature Distribution in the Presence of Aquifers—A Parametric Study (77-Pet-76) (A) **Ja 106**
Formed Heads
Residual Ductility and Residual Stresses in Formed Heads (77-PVP-13) (A) **Ja 107**
Forming Parameters
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/Prod-1) (A) **My 102**
Fossil Fuel Power Plants
Dynamic Response of a High-Pressure Steam Pipe in a Fossil Fuel Power Plant (78-PVP-75) (A) **N 120**
Fossil Fuels
Hybrid Geothermal—Fossil Power Plants **D 28**
Power Shortages Ahead (ES) **Ap 21**
Twilight of the Fossil Age? **O 80**
Fossil-Geothermal System
Hybrid Fossil-Geothermal Power Plants (77-WA/Ener-2) (A) **My 93**
Fossil Heat Sources
The Closed-Cycle Turbine—Present and Future Prospectives for Fossil and Nuclear heat Sources (78-GT-102) (A) **Ag 108**
Fossil Hydrocarbons
Hydrogen Production by Electrolysis (IF) **D 48**
Forster, L. L. History and Development of Condensers at the Geysers Geothermal Power Plant (78-JPGC-Pwr-18) (A) **D 84**
Forster, S. Compact Metallic and Ceramic Recuperators for Gas Turbines (78-GT-62) (A) **Jl 95**
Foster, C. B. ERDA's Coal-Oil Mixture Combustion Program (77-WA/Fu-4) (A) **My 93**
Foster, L. W. One-Stage and Two-Stage Vibration Isolators as Applied to High-Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) (A) **F 124**
Foster-Pegg, R. W. Gas Compression in Combined Cycles with Gasification (78-GT-175) (A) **S 74**
Fouling
An Economic Evaluation of Washed Coal for the Four Corners Generating Station (77-WA/CD-2) (A) **My 101**
Slagging and Fouling Properties of Coal Ash Deposits as Determined in a Laboratory Test Facility (77-WA/Fu-6) (A) **My 93**
Four-Bar Chains
Experimental Kinematic Analysis and a New Technique of Synthesis of an Elastic Four Bar Chain (78-DET-63) (A) **D 94**
Four-Bar Linkages
A Compendium of Line-Symmetric Four-Bars (78-DET-14) (A) **D 89**
The Elastic-Dynamic Behavior of a Counterweighted Rocker Link with an Overhanging Endmass in a Four-Bar Linkage Part I: Theory (78-DET-23) (A) **D 90**; Part II: Application and Experiment (78-DET-24) (A) **D 90**
Joint Displacements in Linkage Synthesis Solutions (78-DET-43) (A) **D 92**
Multiparametric Optimization of Four-Bar Linkages (78-DET-7) (A) **D 87**
Four-Bar Mechanisms
Generalized Force Curve Shapes for Structural Synthesis of Joint Torque Systems to Produce a Desired Dynamic Motion Time Response of a 4R-Bar (78-DET-39) (A) **D 92**
Synthesis is of the Four-Bar Mechanisms for the Generation of Symmetrical "V" Shaped Coupler Curves of Specified Flank Angles for Linkage-Geneva Mechanisms (78-DET-52) (A) **D 91**
Synthesis of the Plane Four-Bar Mechanism for Torque Generation, and Application to a Case Study for the Design of a New Balancing Mechanism for Rotary Top Brush in Power Wax Car Washing Machines (78-DET-71) (A) **D 94**
On Velocity Fluctuation in Skew Four-Bar Mechanisms (78-DET-45) (A) **D 92**
Fowler, J. R. Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) (A) **Ja 106**
Fox, G. L., Jr. Fuel Porosity and Crack Effects on Transient Overpower Analysis (78-PVP-52) (A) **N 118**
Fox, J. N. Core Mechanics and Configuration Behavior of Advanced LMFBR Core Restraint Concepts (78-PVP-49) (A) **N 118**
Fox, M. Deep Water Position Measuring System for Dynamically Positioned Ships (77-Pet-39) (A) **Ja 102**
Fracture
A Computational Model for Fracture of Pressure Vessel Steel Derived from Experimental Data (78-PVP-92) (A) **N 122**
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**
Dynamic Fracture of 6061-T6 Aluminum Cylinders (77-WA/APM-14) (A) **Jl 97**
The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) (A) **Je 108**
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) (A) **O 101**
A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) (A) **O 100**
Fracture Analysis
Fracture Analysis of the Adhesively Bonded Cracked Panels (77-WA/Mat-2) (A) **Je 108**
Fracture Control Principles
The Application of Fracture Control Principles to Freight Car Center-Sill Structures (78-RT-7) (A) **O 91**
Fracture Discontinuities
Fracture Discontinuities and Structural Analysis in Resource Recovery Endeavors (77-Pet-32) (A) **Ja 101**
Fracture Mechanics
Acoustic Emission Monitoring During Rupture Test of Pressure Vessel and Laboratory Fracture Test (78-PVP-18) (A) **O 104**
Analysis of Crack Arrest in Reactor Pressure Vessels (78-Mat-16) (A) **O 100**
Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) (A) O 99
Fatigue Crack Propagation of Short Cracks (78-Mat-7) (A) **O 100**
Fracture Mechanics Analysis of JAERI Model Pressure Vessel Test (78-PVP-91) (A) **N 122**
Residual Fatigue Life Determination of Anchor Bolts (78-Mat-8) (A) **O 99**
Fracture Predictions
Stress Corrosion Crack Growth and Fracture Predictions for BWR Piping (78-Mat-23) (A) **O 101**
Fracture Propagation
Shear Fracture Propagation by DCB Testing (77-Pet-32) (A) **Ja 101**
Fracture Resistance
Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) (A) **Ja 101**
Fracture Response
Effect of Axial Force on Dynamic Fracture of a Beam or Plate in Pure Bending (77-WA/APM-22) (A) **Jl 96**
Fracture Strength
On the Tensile and Compressive Strength of Solids Weakened (Strengthened) by an Inhomogeneity (77-WA/APM-4) (A) **Je 111**
Fracture Toughness
Flaw Tolerance Evaluation of Heat Affected Zones (78-Mat-14) (A) **O 100**
Reference Fracture Toughness Curves for Irradiated Pressure Vessel Steels (78-Mat-20) (A) **O 101**
Fractures
Good Breaks! (BTR) **Ag 59**
Origin and Spacing of Cleats in Coal Beds (77-Pet-24) (A) **Ja 101**
Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) (A) **Ja 103**
On the Use of Strain Energy Density Fracture Criterion in the Design of Gears Using Finite Element Method (77-DET-158) (A) **F 129**
Fracturing
On the Stimulation of Geothermal Reservoir by Downward Hydraulic Fracturing (77-Pet-81) (A) **Ja 107**
Fradin, C. Analysis of the Flow Field in a Radial Compressor (78-GT-7) (A) **Jl 87**
Fraize, W. Technical and Objectives for the Development of Advanced Combined Cycles for Use with Coal-Derived Fuels (78-GT-101) (A) **Ag 108**
Fraize, W. E. Effects of Steam Injection on the Performance of Gas Turbine Power Cycles (78-GT-11) (A) **Jl 87**
Frames
Minicomputers Turn to Steel Wire Frames (BTR) **Ja 60**
France, D. M. Recent Advances in Evaluating Critical Heat Flux Conditions in LMFBR Steam Generators (77-WA/NE-11) (A) **Je 101**
Frankenberg, T. T. Ambient Ground-Level Sulfur Dioxide Concentrations in the Vicinity of a Multiple Stack Power Plant During and After Operation (77-WA/APC-4) (A) **My 102**
Franklin, C. J. Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) (A) **Ag 114**
Fratcher, G. E. Elections to Fellow Grade **Ja 98**
Free-Coiled Pressure Vessels
Theory of Free Coiled Pressure Vessels (78-PVP-73) (A) **N 120**
Free Stream Pressure
Boundary Layer Calculation for Analysis and Design (77-WA/FE-25) (A) **Ap 96**
Free Stream Turbulence
Effect of Mainstream Variables on Jets Issuing From a Row of Inclined Round Holes (78-GT-138) (A) **Ag 113**
Free Surface
The Near-Field Disturbance Created by a Body in a Stratified Medium With a Free Surface (77-WA/APM-18) (A) **Jl 98**
Free Vibration
Free Vibration of Thin Rectangular Plates by a Mixed Finite Element (77-DET-143) (A) **F 128**
Freed, DeBow, II *(recipient)* Marjorie Roy Rothermel Scholarship **N 101**
Freedman, M. Erosion and Its Effect on a Water-Cooled Turbine (78-GT-123) (A) **Ag 111**
Freeze, H. L. Evolution of Radwaste Evaporators in West Germany (77-JPGC-NE-13) (A) **Mr 91**
Freezing
A Two-Dimensional Numerical Solution to Freezing/Melting in Cylindrical Coordinates (77-WA/HT-11) (A) **Ap 102**
Freezor, M. D. Numerical Linearization of Thermistor Bridge Circuits for in Vivo Medical Research (77-WA/Bio-14) (A) **Ap 99**
Frei, O. Prototype Tests of a New 5-MW Industrial Gas

Turbine (78-GT-131) (A) **Ag 112**

Freight Cars
The Application of Fracture Control Principles to Freight Car Center-Sill Structures (78-RT-7) (A) **O 91**
A Car Rocking Mechanism (77-WA/RT-11) (A) **Mr 85**
High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) (A) **Mr 84**
Lateral Stability of Freight Cars With Axles Having Different Wheel Profiles and Asymmetric Loading (78-RT-3) (A) **O 90**
Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) (A) **Mr 85**
Progress in Railway Mechanical Engineering (1976-1977 Report of Survey Committee) Cars and Equipment (77-WA/RT-5) (A) **Mr 85**
Ride Quality of Autorack Cars (77-WA/RT-7) (A) **Mr 85**
Summarization and Comparison of Freight Car Truck Load Data (77-WA/RT-3) (A) **Mr 84**

Freight Train Service
Braking Duty in North American Freight Train Service and Effects on Brake Equipment, Brake Shoes and Wheels (78-RT-9) (A) **O 91**

Fretting Wear
Fretting Wear of Heat Exchanger Tubes Part I: Experiments (78-JPGC-NE-8) (A) **D 84**; Part II: Models (78-JPGC-NE-9) (A) **D 84**

Freud, C. J. Kudos for Kezios (C) **Ag 53**

Freudenstein, F. Optimization of Crank-and-Rocker Linkages with Size and Transmission Constraints (78-DET-6) (A) **D 87**; Optimum Synthesis of Mechanisms Using Heuristics for Decomposition and Search (78-DET-5) (A) **D 88**; Performance Criteria for High-Speed Crank-and-Rocker Linkages Part I: Plane Crank-and-Rocker Linkages (78-DET-33) (A) **D 90**; Performance Criteria for High-Speed Crank-and-Rocker Linkages Part II: Spherical Crank-and-Rocker Linkages (78-DET-34) (A) **D 91**

Freund, L. B. Effect of Axial Force on Dynamic Fracture of a Beam or Plate in Pure Bending (77-WA/APM-22) (A) **Jl 98**

Friction
An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) (A) **Ja 114**
Determining the Coefficient of Friction for Rolling Disks (77-Lub-11) (A) **Mr 85**
Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) (A) **F 123**
Effect of Slip on Response of a Vibrating Compressor Blade (77-WA/GT-3) (A) **Ap 100**
On the Forces Between the Belt and Driving Pulley of a Flat Belt Drive (77-DET-161) (A) **F 130**
Heat Transfer in a Pipe Rotating Around A Perpendicular Axis (77-WA/HT-39) (A) **My 99**
Limit Analysis of Hollow Disk Forging Part 1: Upper Bound (77-WA/Prod-2) (A) **My 103**; Part 2: Lower Bound (77-WA/Prod-3) (A) **My 103**
A Simple Dynamic Model for Stimulating Draft-Gear Behavior in Rail-Car Impacts (78-RT-2) (A) **O 90**
Theory of Linear Continuous Extrusion Linex (77-WA/Prod-17) (A) **Je 105**

Friction Analysis
Planetary Ball Drive Mechanism (PLABALL) (77-DET-170) (A) **F 130**

Friction Coefficient Distribution
Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) (A) **Je 106**

Friction Factor
The Structure of a Boundary Layer on a Rough Wall with Blowing and Heat Transfer (78-HT-3) (A) **O 92**

Friction Failure
Two Temperature Gradients Model for Friction Failure (77-Lub-28) (A) **Mr 87**

Friction Heat Flow
Flow of Friction Heat and Design Temperatures at Sliding Contacts (77-DET-113) (A) **F 125**

Friction Planetary Ball Drive
Planetary Ball Drive Mechanism (PLABALL) (77-DET-170) (A) **F 130**

Friction Systems
Model for Gear Scoring (77-DET-60) (A) **Ja 113**

Frictional Behavior
Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) (A) **Mr 86**

Frictional Dynamics
The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) (A) **Mr 87**

Frictional Fraction
Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) (A) **F 132**

Frictionally Heated Line Contact
Thermoelastic Effects in Frictionally Heated Line Contact of Slab Like Bodies (77-Lub-21) (A) **Mr 86**

Friedrich, R. Profile Loss Characteristics and Heat Transfer of Full Coverage Film-Cooled Blading (78-GT-98) (A) **Ag 108**

Frigates
USS Oliver Hazard Perry (FFG-7) Guided Missile Frigate Propulsion System Land Based Test Site Operational Experience (78-GT-150) (A) **Ag 115**

Fritchman, D. M. Defining Engineers (C) **N 56**

Frohrib, D. A. Alternative Tuned Absorbers for Steady-State Vibration Control of Tall Structures (77-DET-84) (A) **Ja 115**; A Closed-Form Numerical Algorithm for the Periodic Response of High-Speed Elastic Linkages (78-DET-15) (A) **D 89**; A Computationally Efficient Numerical Algorithm for the Transient Response of High-Speed Elastic Linkages (78-DET-54) (A) **D 93**

Fromnes, D. J. Numerical Linearization of Thermistor Bridge Circuits for in Vivo Medical Research (77-WA/Bio-14) (A) **Ap 99**

Fronczak, F. J. Alternative Energy System (C) **My 53**

Frost Heave
Advances in Frost Heave Prediction and Mitigation Methods for Pipeline Application (77-WA/HT-19) (A) **Ap 103**

Frozen Soils
Pile Foundations in Frozen Soils (77-Pet-79) (A) **Ja 106**

Frutschi, H. U. Rapid Positive Load Changes by Gas Injection in Closed Gas Turbine Cycles (78-GT-8) (A) **Jl 87**

Fuchs, H. O. For Plain Good Character (C) **Mr 46**

Fuel Additives
The Effects of Smoke Suppressant and Corrosion Inhibiting Fuel Additives on the Particulate and Gaseous Emissions from a Utility Gas Turbine (78-GT-64) (A) **Jl 95**

Fuel Assemblies
Non-Linear Lateral Mechanical Response of Pressurized Water Reactor Fuel Assemblies (77-WA/DE-18) (A) **Mr 95**

Fuel Bound Nitrogen Concentration
The Effects of Fuel Bound Nitrogen Concentration and Water Injection on NO_x Emissions from a 75-MW Gas Turbine (78-GT-89) (A) **Ag 107**

Fuel Cell Impact
Experimental Investigation of Simulated Helicopter Fuel Cell Impact Phenomenon (78-DET-79) (A) **D 95**

Fuel Cells
The Fuel Cell is Alive and Well (ES) **Ag 22**
Fuel Cell Power Plants Studied (BTR) **Ag 60**

Fuel Conservation
"CANWEL"—A Canadian System for Domestic Waste Management and Energy Reclamation (77-WA/FU-2) (A) **My 92**
Coming Next: the Hybrid Car (ES) **N 20**
The Energy Saver Combined Cycle (78-GT-127) (A) **Ag 112**
Self-Recuperative Burner (IF) **N 72**

Fuel Consumption
Advanced Turbofan Engines for Low Fuel Consumption (78-GT-192) (A) **S 76**
Description and Performance of a 7000-Shp Marine Gas Turbine Engine (78-GT-188) (A) **S 76**
Evolution of the Turboprop for High Speed Air Transportation (78-GT-201) (A) **S 77**
Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**
Making Turbofan Engines More Energy Efficient (78-GT-198) (A) **S 76**
Versatile Mobile Platform (IF) **Ja 68**

Fuel Control
A Digital Fuel Control System for Gas Turbines (78-GT-99) (A) **Ag 108**
Nonlinear Digital Simulation and Minimum Fuel Control of a Jet Type Gas Turbine Power Generating Unit (78-GT-43) (A) **Jl 92**

Fuel Cost Reduction
Medium - Speed Diesel Plant (IF) **Je 65**

Fuel Cycles
Alternate Fuel Cycles in HTGR's (77-JPGC-NE-26) (A) **Mr 92**
Proliferation-Resistant Nuclear Technology (NB) **O 68**

Fuel Economy
Coal-Oil Mixture for Economy (BTR) **O 54**
Design and Development of a Low Emission Combustor for a Car Gas Turbine (78-GT-155) (A) **Ag 115**
Down With Drag (C) **Ap 45**

Fuel Efficiency
High-Efficiency Gas Turbine (IF) **O 60**
Higher Fuel Efficiency for EMD Diesel Locomotives (78-RT-4) (A) **O 90**

Fuel Element Design
Overview of Fuel Element Design (78-PVP-50) (A) **N 118**

Fuel Flow Elements
Fuel Flow Elements for Automotive and Small Industrial Gas Turbines (78-GT-17) (A) **Jl 88**

Fuel Gasification
Gas Compression in Combined Cycles with Gasification (78-GT-175) (A) **S 74**

Fuel Handling Equipment
Testing of FFTF Fuel Handling Equipment (77-WA/NE-9) (A) **Je 101**

Fuel Heat Sinks
Advanced Environmental Cooling Concepts for Supersonic Aircraft (78-ENAs-21) (A) **N 112**

Fuel Injection Pressure
Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) (A) **My 96**

Fuel Mileage Increase
New Way to Increase Mileage (NB) **My 72**

Fuel Oil
Evaluation of Two Industrial Boilers with Combustion Modifications for Reduced Pollutant Emissions (77-WA/APC-1) (A) **My 101**
Operating Experience on Residual Fuel Oil with A W251 Combustion Turbine (78-GT-104) (A) **Ag 108**

Fuel Oils
An Automated Method for the Continuous Determination of Total Sodium in Fuel Oil (78-GT-92) (A) **Ag 107**

Fuel Pellets
Fuel Pellets from Forest Wastes (ES) **Ag 22**

Fuel Pin Bundles
Fuel Pin Bundle and Hexagonal Duct Mechanical Interaction (78-PVP-48) (A) **N 117**

Fuel Pin Cladding
Uncertainties in Fast Breeder Reactor Fuel in Pin Cladding Stress and Strain Calculations (78-PVP-54) (A) **N 118**

Fuel Porosity
Fuel Porosity and Crack Effects on Transient Overpower Analysis (78-PVP-52) (A) **N 118**

Fuel Prices
A High-Effectiveness Regenerator Design Concept (78-GT-78) (A) **Ag 105**

Fuel Pumps
Aircraft Fuel Pumps—Where We're At (A Review of Some Problems and Their Current Solutions) (78-GT-10) (A) **Jl 88**

Fuel Resources
"Laundering" Dirty Coal (ES) **D 14**

Fuel Savings
Georgia's Innovative Energy Code (ES) **N 21**

Fuel Storage Facility
Control of Nuclear Fuel Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**

Fuel Successive Screw Method
Dynamic Analysis of Spatial Mechanisms Using Fuel Successive Screw Method and D'Alembert's Principle (78-DET-22) (A) **D 90**

Fuel Temperature Reduction
Cooling Hot Metal Parts in Combustion Equipment (ES) **Jl 22**

Fuel Treatment Programs
Designing Fuel Treatment Programs for Gas-to-Oil Converted Central Station Boilers (77-JPGC-Pwr-13) (A) **Mr 89**

Fuels
Advanced Gasification in Appalachia (ES) **Ag 23**
Alternative Aircraft Fuels (78-GT-59) (A) **Jl 94**
A 1977 Approach to Sulfur Oxide Emissions (77-JPGC-Pwr-1) (A) **Mr 88**
Atomization of Crude and Residual Fuel Oils (78-GT-83) (A) **Ag 106**
A Big Win for Lignite (ES) **Jl 23**
Bioconversion: Fuels from Biomass (CB) **My 107**

Can Coal-Oil Mixtures Make It as Industrial Fuels? **Mr 24**
"CANWELL"—A Canadian System for Domestic Waste Management and Energy Reclamation (77-WA/Fu-2) (A) **My 92**
Combined Cycles for Operation on Coal Derived Fuels with High-Temperature Combustion Turbines (77-WA/Ener-14) (A) **My 95**
A Combined System of Fuel Washing Involving Both Centrifuges and Electrostatic Separators—A Hybrid (78-GT-130) (A) **Ag 112**
Combustion of Coal-Oil Slurry in a 100-HP Firetube Boiler (77-Wa/Fu-5) (A) **My 93**
Demonstration at Con Ed (ES) **D 15**
Design of a High Efficiency Combined Cycle Electric Power Plant for Low Btu Coal-Gas (78-GT-125) (A) **Ag 111**
Development of a Compact Gas Turbine Combustor to Give Extended Life and Acceptable Exhaust Emissions (78-GT-146) (A) **Ag 114**
ERDA's Coal-Oil Mixture Combustion Program (77-WA/Fu-4) (A) **My 93**
Erosion Study in Turbomachinery Affected by Coal Ash Particles (78-GT-136) (A) **Ag 113**
Ethyl Alcohol as Fuel (EN) **O 71**
Forced Vibration Testing of a Nuclear Fuel Assembly (77-DET-141) (A) **F 128**
Funding Synthetic Fuel Programs (ES) **Ap 20**
H-Power in Provo (BTR) **F 58**
Hot Corrosion in Gas Turbines (77-WA/Fu-3) (A) **My 92**
Investigating Combustion Turbine Burner Performance with Coal Derived Liquids Having High Fuel Bound Nitrogen (78-GT-126) (A) **Ag 111**
Low NOx Combustion of Paraho Shale Oil in a 45-MW Utility Boiler (77-WA/Fu-1) (A) **My 92**
Methacoal—Waterless Coal Slurry (BTR) **Ap 47**
Natural Gas Liquids Center (IF) **Ap 64**
Natural Gas Pipeline Expanded (IF) **My 64**
Nuclear Proliferation and Nuclear Power (77-WA/TS-1) (A) **My 98**
Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal (77-WA/Ener-9) (A) **My 94**
Operating Experience with the Gas Turbine Powered LNG/Ethylene Carrier "Lucian" (78-GT-35) (A) **Jl 91**
Preliminary Design of Three Combustion Concepts to Burn Low Btu Coal Gas in a High Temperature 1600°C (3000°F) Combustion Turbine (78-GT-71) (A) **Ag 105**
Problems and Operating Experiences with Gas Turbines Burning Residual and Crude Oils (78-GT-103) (A) **Ag 108**
Prospects for the Gas Turbine in the U.K. Gas Transmission System (78-GT-53) (A) **Jl 94**
Slagging and Fouling Properties of Coal Ash Deposits as Determined in a Laboratory Test Facility (77-WA/Fu-6) (A) **My 93**
Special Engineering Problems of TFTR (77-WA/NE-4) (A) **Je 100**
Spectrometric Analysis of Residual Fuel (78-GT-93) (A) **Ag 107**
Synthetic Fuels Derived from Coal for Marine Applications (78-GT-20) (A) **Jl 88**
Technical and Economic Objectives for the Development of Advanced Combined Cycles for Use with Coal-Derived Fuels (78-GT-101) (A) **Ag 108**
A Thermodynamic Study of Heating With Geothermal Energy (77-WA/Ener-1) (A) **My 93**
Tokamak Reactors (77-WA/NE-3) (A) **Je 100**
Toward a Hydrogen Economy (BTR) **Mr 49**
Use of Thorium in Power Reactors (77-JPGC-NE-24) (A) **Mr 92**
Weak Extinction Limits of Turbulent Flowing Mixtures (78-GT-144) (A) **Ag 114**

Fuels Purification System
Test Results of a New Distillate Fuels Purification System (78-GT-203) (A) **S 77**

Fujii, Y. The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) (A) **Ja 113**

Fujita, K. Difference Between Rolling Fatigue Behaviors of Surface Hardened and of Soft Steel Rollers (77-DET-57) (A) **Ja 112**

Fukuda, M. Development of Sumitomo High Toughness Process (SHT) for Arctic Grade Line Pipes (77-Pet-61) (A) **Ja 104**; Study on the Resistivity of Various Types of Steels Against Propagating Shear Fracture by Modified West Jefferson Type Burst Test (78-PVP-71) (A) **N 120**

Fukui, Y. Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) (A) **F 131**

Fukumoto, H. Remotely Operated Ultrasonic Testing System (78-NE-3) (A) **N 114**

Fukutomi, J. A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbines (78-GT-132) (A) **Ag 112**

Fulachier, L. Spectral Analogy Between Temperature and Velocity Fluctuations in Various Turbulent Flows (78-HT-2) (A) **O 92**

Full Authority Digital Electronic Control
Full Authority Digitial Electronic Control—Highlights of Next Generation Propulstion Control Technology (78-GT-165) (A) **Ag 116**

Fume Formation
Fume Formation in Ammonia Scrubbers (77-WA/APC-2) (A) **My 101**

Funabashi, H. Performance Criteria for High-Speed Crank-and-Rocker Linkages Part I: Plane Crank-and-Rocker Linkages (78-DET-33) (A) **D 90**; Part II: Spherical Crank-and-Rocker Linkages (78-DET-34) (A) **D 91**

Functional Capability
Evaluation of the Functional Capability of ASME Section III Class 1, 2 and 3 Piping Components (78-PVP-83) (A) **N 122**

Functional Systems
JETFOIL In-Service Experience (78-GT-91) (A) **Ag 107**

Function Generation
Computer-Aided Synthesis of a Two-Degree-of-Freedom Planar Linkages for Function Generation (78-DET-30) (A) **D 90**
Elimination of Branch, Grashof, and Order Defects in Path-Angle Generation and Function Generation Synthesis (78-DET-16) (A) **D 89**

Function Technique
Wheelset Lateral Dynamic Analysis Using the Describing Function Technique (77-DET-149) (A) **F 129**

Funding Deficits
Major Firms Show Deficits in Funding of Employee Pension Plans (NR) **My 67**

Furnace
Ceramic Fiber as Burner Block (BTR) **Ap 53**
Development of Sumitomo High Toughness Process (SI:T) for Arctic Grade Line Pipes (77-Pet-61) (A) **Ja 104**
ERDA's Coal-Oil Mixture Combustion Program (77-WA/Fu-4) (A) **My 93**
Self-Recuperative Burner (IF) **N 72**

Fusion
An Analysis of ERDA's National Energy Plan (77-WA/TS-2) (A) **My 98**
Applications of Inertial Confinement Fusion (BTR) **Jl 49**
Of Lasers, Fusion, and Sun Power (ES) **O 47**
Special Engineering Problems of TFTR (77-WA/NE-4) (A) **Je 100**

Fusion Energy
Promising Fusion Device (ES) **My 21**

Fusion Engineer
Fusion Engineering Program (EN) **Ap 74**

Fusion Power
Fusion Energy (77-WA/NE-1) (A) **Je 100**
Fusion Power (C) **Ja 50**
Superconductor Progress Required for Fusion (IF) **Ja 68**

Fusion Reactors
Helium Blistering in Metals (78-Mat-5) (A) **O 99**
Materials for Fusion Reactors (ES) **Je 19**

Fusion Research
Industry Role in Fusion Research (ES) **D 15**

Fusion Systems
Tokamak Reactors (77-WA/NE-3) (A) **Je 100**

Fusion Test Reactor
Waste Tritium Cleanup for the Tokamak Fusion Test Reactor (TFTR) (78-JPGC-NE-15) (A) **D 86**

Future Reality
The Foundations of Appropriate Technology: Values, Technology, and Future Reality (77-WA/TS-7) (A) **My 99**

G

Gaggioli, R. A. Economic Analysis of Boiler Feed Pump Drive Alternatives (77-JPGC-Pwr-8) (A) **Mr 88**; A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) (A) **My 95**

Gaines, A. L. Atomic Issues (C) **Jl 44**

GAISSAR
Introducing the GAISSAR Design (ES) **D 14**

Galaboy, W. B. Geometric Characteristics Design and Manufacturing of Noncircular Gears (77-DET-177) (A) **F 131**

Galactic Center
Anti-Electrons at the Galactic Center (BTR) **O 48**

Galletly, G. D. Elastic and Elastic-Plastic Buckling of Internally-Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) (A) **N 117**

Galvanized Steel
One-Side Galvanized Steel Sheet (IF) **My 64**

Gamble, B. B. The Development of a Rotating Liquid Helium Flow Circuit (77-WA/HT-37) (A) **My 99**

Gangadharan, A. C. Professionally Speaking (C) **Mr 46**; Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) (A) **O 101**

Ganter, M. A. Design Charts for Disk Cams with Reciprocating Radial Roller Followers (78-DET-36) (A) **D 91**

Gap Flow and Seals
A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) (A) **Ap 96**

Garbage Treatment Facility
Garbage Incineration Plant (IF) **Ap 64**

Garg, D. P. Wheelset Lateral Dynamic Analysis Using the Describing Function Technique (77-DET-149) (A) **F 129**

Garg, A. Human Factors in Machine Design (78-DET-68) (A) **D 94**

Garg, V. K. Linear Stability of Jet Flows (77-WA/APM-10) (A) **Je 111**

Gari, H. N. A Passive Technique for Enhancing Thermal Stratification in Liquid Storage Tanks (78-HT-50) (A) **O 97**

Garrett, R. E. A Hierarchical Data Organization-Facilitating Interactive Three-Dimensional Design (77-DET-108) (A) **F 125**

Gartner, H. M. Professionally Speaking (C) **Mr 46**

Gartner, J. R. A Technique for Assessing the Running Life of Thermoplastic Conveyor Chains (77-DET-160) (A) **F 129**

Gas
Converting Coal to Gas (EN) **F 69**
A Heat-Recovery System for Process Industries (77-WA/Ener-15) (A) **My 95**
Improved LNG Semi Trailer Design (77-Pet-57) (A) **Ja 104**
Natural Gas Pipeline Expanded (IF) **My 64**
The Offshore LNG Facility—1977 Status Review (77-Pet-83) (A) **Ja 107**
One Way to Get Gas (ES) **Ja 19**
Solid Waste Treatment Plant (IF) **Jl 54**
West Coast—Mid Continent Pipeline Project. (Engineering/Management Phases for Conversion of Natural Gas Transmission Systems to Crude Oil Transportation) (77-Pet-65) (A) **Ja 105**

Gas Boiler
Waste Heat Recycling System Replaces Gas Boiler (BTR) **N 67**

Gas Centrifuge
Uranium Enrichment by Gas Centrifuge (ES) **Je 18**

Gas Compression
Gas Compression in Combined Cycles with Gasification (78-GT-175) (A) **S 74**

Gas Demonstration Plant
Another Commitment to Coal Gasification (ES) **S 21**

Gas Flow
Investigation of Heat Transfer Between an Electric Arc and a Turbulent Gas Flow in a Channel (78-HT-8) (A) **O 92**

Gas Generator
The Application of Low Cost Manufacturing Technology to a Turbine Gas Generator (78-GT-202) (A) **S 77**
Design and Development of a Power Turbine for the Spey Gas Generator (78-GT-183) (A) **S 75**

Gas Industry
The Centaur Engine: Operational Progress Report (78-GT-159) (A) **Ag 116**

Gas Liquefaction
Offshore Gas Liquefaction (IF) **F 63**

Gas Mileage
Flywheels Could Double Gas Mileage (BTR) **D 39**

Gas-to-Oil Converted Boilers
Designing Fuel Treatment Programs for Gas-to-Oil Converted Central Station Boilers (77-JPGC-Pwr-13) (A) **Mr 89**

Gas Path Performance
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) (A) **Ag 109**
Gas Pipeline
Conversion of Gas Pipeline to Liquids Service (77-Pet-18) (A) **Ja 100**
Gas Pipelines
Economic Evaluation Technique of Selecting Turbines for Natural Gas Pipelines (78-GT-67) (A) **Ji 95**
Performance Optimization of Existing Gas Pipeline Systems (77-Pet-85) (A) **Ja 107**
Gas Pressure Bonding
Gas Pressure Bonding of Stratapax (77-Pet-72) (A) **Ja 105**
Gas Production
Gas From the Gulf (ES) **Ja 18**
Gas Pumps
Gas Motor-Heat Pump (IF) **S 56**
Gas Radiative Properties
Radiative Transfer in Hartmann MHD Flow (78-HT-18) (A) **O 94**
Gas Reserve
Strategic Reserve of Helium Proposed (BTR) **My 58**
Gas Reserves
Twenty-five Trillion Cu Ft of Natural Gas (ES) **F 26**
Gas Temperature
Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) (A) **My 96**
Gas Turbine Conference
Advanced Industrial Turbine Gear Calculation Methods (78-GT-174) (A) **S 74**
Advanced Turbofan Engines for Low Fuel Consumption (78-GT-192) (A) **S 76**
Aerodynamic Development of Stages for Industrial Centrifugal Compressors. Part 1: Testing Requirements and Equipment—Immediate Experimental Evidence (78-GT-4) (A) **Ji 87**; Part 2: Test Data Analysis, Correlation and Use (78-GT-5) (A) **Ji 87**
Aerodynamic Force and Moment on Oscillating Airfoils in Cascade (78-GT-181) (A) **S 75**
Aeroelastic Stability Analysis of Supersonic Cascades (78-GT-151) (A) **Ag 115**
Aircraft Fuel Pumps—Where We're At (A Review of Some Problems and Their Current Solutions) (78-GT-10) (A) **Ji 88**
Alternative Aircraft Fuels (78-GT-59) (A) **Ji 94**
Alternative Closed-Cycle Gas Turbine System Design Considerations for Ship Propulsion Applications (78-GT-18) (A) **Ji 89**
Analysis of the Flow Field in a Radial Compressor (78-GT-7) (A) **Ji 87**
An Analysis Procedure for the Validation of On-Site Performance Measurements of Gas Turbines (78-GT-152) (A) **Ag 115**
Annular Diffuser Performance for an Automotive Gas Turbine (78-GT-147) (A) **Ag 114**
The Application of Low Cost Manufacturing Technology to a Turbine Gas Generator (78-GT-202) (A) **S 77**
Application of Nonseries Airfoil Design Technology to Highly Loaded Turbine Exit Guide Vanes (78-GT-108) (A) **Ag 105**
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) (A) **Ag 109**
Atomization of Crude and Residual Fuel Oils (78-GT-83) (A) **Ag 106**
An Automated Method for the Continuous Determination of Total Sodium in Fuel Oil (78-GT-92) (A) **Ag 107**
An Axial Compressor End-Wall Boundary Layer Calculation Method (78-GT-81) (A) **Ag 105**
Bearing Compartment Seal Systems for Turbomachinery in Direct-Cycle HTGR Power Plants (78-GT-38) (A) **Ji 91**
Bypass Control of Closed-Cycle Gas Turbines (78-GT-70) (A) **Ji 96**
A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**
The Centaur Engine: Operational Progress Report (78-GT-159) (A) **Ag 116**
The Closed-Cycle Turbine—Present and Future Prospectives for Fossil and Nuclear Heat Sources (78-GT-102) (A) **Ag 108**
A Combined System of Fuel Washing Involving Both Centrifuges and Electrostatic Separators—A Hybrid (78-GT-130) (A) **Ag 112**
The Compact Industrial Gas Turbine—Recent Technical Improvements (78-GT-41) (A) **Ji 91**
Compact Metallic and Ceramic Recuperators for Gas Turbines (78-GT-62) (A) **Ji 95**
Compressed Air Energy Storage Turbomachinery (78-GT-97) (A) **Ag 108**
Computations of Three-Dimensional Gas-Turbine Combustion Chamber Flows (78-GT-142) (A) **Ag 114**
Computer Aided Design of Mixed Flow Turbines for Turbochargers (78-GT-191) (A) **S 76**
A Computer Program for the Design of Turbomachinery Blades (78-GT-36) (A) **Ji 91**
The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) (A) **Ag 113**
Cooling Characteristics of Film Cooled Turbine Vane Having Multi-Row of Ejection Holes (78-GT-21) (A) **Ji 89**
Demonstration of Ceramic Design Methodology for a Ceramic Combustor Liner (78-GT-137) (A) **Ag 113**
Description and Performance of a 7000-Shp Marine Gas Turbine Engine (78-GT-188) (A) **S 76**
Design Considerations for Future Heat Recovery Boilers Aboard Naval Vessels (78-GT-162) (A) **Ag 105**
Design and Development of a Low Emission Combustor for a Car Gas Turbine (78-GT-155) (A) **Ag 115**
Design and Development of a Power Turbine for the Spey Gas Generator (78-GT-183) (A) **S 75**
Design of a Family of Packages for A 7500-kW Industrial Gas Turbine (78-GT-37) (A) **Ji 91**
Design of a High Efficiency Combined Cycle Electric Power Plant for Low Btu Coal-Gas (78-GT-125) (A) **Ag 111**
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) (A) **Ji 90**
A Design Point Correlation for Losses due to Part-Span Dampers on Transonic Rotors (78-GT-153) (A) **Ag 115**
Design of a Pressurized Fluid Bed Coal Fired Combined Cycle Electric Power Generation Plant (78-GT-135) (A) **Ag 113**
Development and Closed-Loop Testing of High Efficiency Compressors for Use with a 7000-kW Gas Turbine (78-GT-189) (A) **Ag 117**
Development of a Compact Gas Turbine Combustor to Give Extended Life and Acceptable Exhaust Emissions (78-GT-146) (A) **Ag 114**
Development of the Garrett GTPF990—A 5000-Horsepower Marine and Industrial Gas Turbine Engine (78-GT-44) (A) **Ji 92**
Development of Gas Turbine Performance Seeking Logic (78-GT-13) (A) **Ji 88**
Development of an Inlet for a Tilt Nacelle Subsonic V/STOL Aircraft (78-GT-121) (A) **Ag 111**
Development of a Water-Cooled Gas Turbine (78-GT-72) (A) **Ji 96**
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) (A) **Ji 95**
A Digital Approach to Industrial Gas Turbine Control (78-GT-39) (A) **Ji 91**
A Digital Fuel Control System for Gas Turbines (78-GT-99) (A) **Ag 108**
Direct Blade Force Measurements in Transonic Cascade Flows (78-GT-45) (A) **Ji 93**
Dynamic Response Testing of Gas Turbines (78-GT-31) (A) **Ji 90**
Dynamic Stall of An Airfoil with Leading Edge Bubble Separation Involving Time Dependent Re-Attachment (78-GT-194) (A) **S 76**
Economic Evaluation Technique of Selecting Turbines for Natural Gas Pipelines (78-GT-67) (A) **Ji 95**
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) (A) **Ag 106**
Effect of Mainstream Variables on Jets Issuing From a Row of Inclined Round Holes (78-GT-138) (A) **Ag 113**
The Effect of a Transversely Injected Stream on the Flow Through Turbine Cascades: Part 3—Influence of Aspect Ratio (78-GT-24) (A) **Ji 89**
The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) (A) **Ag 106**
The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) (A) **Ag 106**
Effects of Fluid Leakage on Performance of a Centrifugal Compressor (78-GT-143) (A) **Ag 114**
The Effects of Fuel Bound Nitrogen Concentration and Water Injection on NO_x Emissions from a 75-MW Gas Turbine (78-GT-89) (A) **Ag 107**
The Effects of Smoke Suppressant and Corrosion Inhibiting Fuel Additives on the Particulate and Gaseous Emissions from a Utility Gas Turbine (78-GT-64) (A) **Ji 95**
Effects of Steam Injection on the Performance of Gas Turbine Power Cycles (78-GT-11) (A) **Ji 87**
An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Ji 94**
Electronic Controls of Gas Turbine Engines in Fighting Vehicles (78-GT-48) (A) **Ji 93**
The Energy Saver Combined Cycle (78-GT-127) (A) **Ag 112**
Erosion and Its Effect on a Water-Cooled Turbine (78-GT-123) (A) **Ag 111**
Erosion Study in Turbomachinery Affected by Coal Ash Particles (78-GT-136) (A) **Ag 113**
Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) (A) **Ag 114**
An Evaluation Technique for Determining the Cost Effectiveness of Condition Monitoring Systems (78-GT-166) (A) **Ag 116**
Evolution of The Turboprop for High Speed Air Transportation (78-GT-201) (A) **S 77**
Evaluation of a Water-Cooled Gas Turbine Combined Cycle Plant (78-GT-77) (A) **Ag 105**
Experimental Investigation of Unsteady Phenomena in Vaneless Radial Diffusers (78-GT-23) (A) **Ji 89**
Experimental Study of an Axial Compressor Rotor Transfer Function with Nonuniform Inlet Flow (78-GT-69) (A) **Ji 96**
Experimental Study on Diffusers for Mixed-Flow Machines (78-GT-120) (A) **Ag 110**
Experimental Study on Flow in a Supersonic Centrifugal Impeller (78-GT-2) (A) **Ji 87**
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) (A) **Ag 109**
Film Cooling Effectiveness for Injection From Multirow Holes (78-GT-32) (A) **Ji 90**
Flame Characteristics of a NASA Contra Swirler Module (78-GT-163) (A) **Ag 116**
Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**
Flow in an Annular Axial-Radial Diffuser (78-GT-133) (A) **Ag 112**
Fuel Flow Elements for Automotive and Small Industrial Gas Turbines (78-GT-17) (A) **Ji 88**
Full Authority Digital Electronic Control—Highlights of Next Generation Propulsion Control Technology (78-GT-165) (A) **Ag 116**
Full Load Tests of the 80-MW Gas Turbine V 93.2 Using a Water Brake (78-GT-68) (A) **Ji 95**
Future Prospects for Naval Propulsion Gas Turbines (78-GT-106) (A) **Ag 109**
Gas Compression in Combined Cycles with Gasification (78-GT-175) (A) **S 74**
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) (A) **Ag 109**
Gas Turbine Combustor Cooling by Augmented Backside Convection (78-GT-33) (A) **Ji 90**
Gas Turbine Commissioning Procedure (78-GT-54) (A) **Ji 94**
1978 Gas Turbine Conference and Show (NR) **Mr 66**
Gas Turbine Education and Research Programs in German Universities (78-GT-171) (A) **Ag 117**
The Gas Turbine Waste Heat Recovery System and the U.S. Navy (78-GT-170) (A) **Ag 116**
Grid Connected Electrical-Thermal (Cogeneration) Energy System for University of California, Davis, California (78-GT-134) (A) **Ag 112**
Growth of a Perturbation in an Axial Flow Compressor (78-GT-30) (A) **Ji 90**
Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) (A) **Ag 110**
Heat Transfer From Axisymmetric Sources at the Surface of a Rotating Disk (78-GT-141) (A) **Ag 114**
A High-Effectiveness Regenerator Design Concept (78-GT-78) (A) **Ag 105**
A High Temperature Turbine Research Module (77-GT-73) (A) **Ag 105**
Hot Corrosion of Gas Turbine Components (78-GT-82) (A) **Ag 106**
20 HP Mini-RPV Demonstrator Engine Programs (78-GT-200) (A) **S 76**
Influences on Exhaust Emissions From Automotive Gas

Turbines (78-GT-85) (A) **Ag 106**
Influence of Geometric Effects on the Aspect Ratio Optimization of Axial Turbine Bladings (78-GT-173) (A) **S 74**
An Integrated Quasi-3D Finite Element Calculation Program for Turbomachinery Flows (78-GT-56) (A) **JI 94**
Investigating Combustion Turbine Burner Performance with Coal Derived Liquids Having High Fuel Bound Nitrogen (78-GT-126) (A) **Ag 111**
Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-HT-185) (A) **S 75**
Investigation Concerning Rotating Stall and Surge Phenomena within Centrifugal Compressor Channels (78-GT-9) (A) **JI 87**
An Investigation of Turbine Erosion by Combustor Generated Carbon in a Lightweight Marine Gas Turbine (78-GT-96) (A) **Ag 107**
Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) (A) **JI 88**
Jet Cooling at the Rim of a Rotating Disk (78-GT-25) (A) **JI 89**
Jet Curtain Flameholder for Aircraft Afterburners (78-GT-95) (A) **Ag 107**
JETFOIL In-Service Experience (78-GT-91) (A) **Ag 107**
Limits of Rotating Stall and Stall in Vaneless Diffuser of Centrifugal Compressors (78-GT-19) (A) **JI 88**
Making Turbofan Engines More Energy Efficient (78-GT-198) (A) **S 76**
Marine Gas Turbine Inlet and Exhaust Systems for the R.N. (78-GT-190) (A) **S 75**
Marine Gas Turbines in the Royal Navy 1976-1978 (78-GT-197) (A) **S 76**
Marine Spey—SM1A Propulsion Module (78-GT-58) (A) **JI 94**
Measurement of Emissions Variability of a Large Turbofan Aero-Engine (78-GT-75) (A) **Ag 105**
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) (A) **Ag 110**
Measurement of Heat-Transfer Rate to a Gas Turbine Stator (78-GT-119) (A) **Ag 110**
A Microprocessor Based Hierarchical Control System for Gas Turbines (78-GT-124) (A) **Ag 111**
Military Engine Usage Monitoring Developments in the United Kingdom (78-GT-65) (A) **JI 95**
A New Appraisal of Reynolds Number Effects on Centrifugal Compressor Performance (78-GT-149) (A) **Ag 114**
A New Concept for the Development of Coal Burning Gas Turbines (78-GT-40) (A) **JI 91**
A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) (A) **Ag 113**
Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**
Nonlinear Digital Simulation and Minimum Fuel Control of a Jet Type Gas Turbine Power Generating Unit (78-GT-43) (A) **JI 92**
Nonsteady Operational Behavior of Single-Shaft and Two-Shaft Closed-Cycle Gas Turbines (78-GT-15) (A) **JI 88**
One Manufacturer's View of Gas Turbine Service (78-GT-49) (A) **JI 93**
On-Site Generation of Hydrogen for Generator Cooling (78-GT-196) (A) **S 76**
Operating Experience with the Gas Turbine Powered LNG/Ethylene Carrier "Lucian" (78-GT-35) (A) **JI 91**
Operating Experience on Residual Fuel Oil with A W251 Combustion Turbine (78-GT-104) (A) **Ag 108**
Optimization Analysis of a CCGT Nuclear Power Plant with Application to the HHT 3000 MWth Commercial Plant (HHT-Project) (78-GT-16) (A) **JI 88**
Performance and Design of Transpiration-Cooled Turbine Blading (78-GT-122) (A) **Ag 111**
Performance Investigations of Large Capacity Centrifugal Compressors (78-GT-3) (A) **JI 87**
Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **JI 87**
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) (A) **JI 89**
Powerplant Integration—the Application of Current Experience to Future Developments (78-GT-113) (A) **Ag 109**
Preliminary Design of Three Combustion Concepts to Burn Low Btu Coal Gas in a High Temperature 1600°C (3000°F) Combustion Turbine (78-GT-71) (A) **Ag 105**
Pressure Instrumentation for Gas Turbine Engines—A Review of Measurement Technology (78-GT-148) (A) **Ag 114**
Problems and Operating Experiences with Gas Turbines Burning Residual and Crude Oils (78-GT-103) (A) **Ag 108**
Profile Loss Characteristics and Heat Transfer of Full Coverage Film-Cooled Blading (78-GT-98) (A) **Ag 108**
Propagation of Inlet Flow Distortions Through an Axial Compressor Stage (78-GT-34) (A) **JI 91**
Propeller Unsteady Thrust Due to Operation in Turbulent Inflows (78-GT-94) (A) **Ag 107**
A Proposed Scheme for Computer Aided Design and Manufacture of Radial Turbine Rotors (78-GT-156) (A) **Ag 115**
Propulsion Cycle and Configuration Commonality Considerations for Subsonic V/STOL Design (78-GT-88) (A) **Ag 106**
Propulsion System Considerations for the Subsonic V/STOL (78-GT-57) (A) **JI 94**
Propulsion System Design for the Multi-Mission Patrol Ship Mart 1/1A (78-GT-182) (A) **S 75**
Propulsion Test Facilities Technical Capabilities and International Use (78-GT-184) (A) **S 75**
Prospects for the Gas Turbine in the U.K. Gas transmission System (78-GT-53) (A) **JI 94**
The Prospects for Lightweight Ship Propulsion Systems (78-GT-179) (A) **S 74**
Prototype Tests of a New-5MW Industrial Gas Turbine (78-GT-131) (A) **Ag 112**
A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbines (78-GT-132) (A) **Ag 112**
Radial Compressor Development as Dictated by the Requirements of Large Turbochargers (78-GT-187) (A) **S 75**
The Radial Turbine as a Ceramic Component (78-GT-178) (A) **S 75**
Radial Vaneless Diffusers: A Re-Examination of the Theories of Dean and Senoo and of Johnston and Dean (78-GT-186) (A) **S 75**
Rapid Positive Load Changes by Gas Injection in Closed Gas Turbine Cycles (78-GT-8) (A) **JI 87**
A Rational Analysis of Periodic Flow Perturbation in Supersonic Two-Dimensional Cascade (78-GT-176) (A) **S 74**
Rationalization of Empirical Loss Coefficients and Their Application in One Dimensional Performance Prediction Procedures for Centrifugal Compressors (78-GT-177) (A) **S 75**
Reasons for Centrifugal Compressor Surging and Surge Control (78-GT-28) (A) **JI 90**
Recent Developments in Sensors for the Gas Turbine Engine (78-GT-52) (A) **JI 94**
Recent Experience on Centrifugal Compressors for Small Gas Turbines (78-GT-193) (A) **S 76**
The Reliability of Gas Turbine Powered Compressor Units (78-GT-27) (A) **JI 90**
Requirements for Educational Gas Turbines (78-GT-76) (A) **Ag 105**
Research of the XF3-1 Turbofan Engine (78-GT-199) (A) **S 76**
Test Results of a New Distillate Fuels Purification System (78-GT-203) (A) **S 77**
The Reversed Brayton Cycle Heat Pump—A Natural Open Cycle for HVAC Applications (78-GT-50) (A) **JI 95**
The Role of the Recuperator in High Performance Gas Turbine Applications (78-GT-46) (A) **JI 92**
A Rotating Stall Control System for Turbojet Engines (78-GT-115) (A) **Ag 109**
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) (A) **Ag 109**
Second-Generation Integrated Coal Gasification/Combined-Cycle Power System (78-GT-14) (A) **JI 88**
Selection of Compressors and Driving Equipment (78-GT-168) (A) **Ag 116**
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) (A) **JI 89**
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) (A) **Ag 109**
A Simple Method for the Prediction of Wall Temperatures in Gas Turbines (78-GT-90) (A) **Ag 107**
Simulation of Helicopter Powerplant Performance (78-GT-51) (A) **JI 93**
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) (A) **Ag 115**
Spectrometric Analysis of Residual Fuel (78-GT-92) (A) **Ag 107**
The Stability of an Asymmetric Rotor in Damped Supports (78-GT-172) (A) **Ag 117**
Stabilizing and Destabilizing Effects of Coriolis Force on Two-Dimensional Laminar and Turbulent Boundary Layers (78-GT-1) (A) **JI 87**
Stresses in Turbine Blades Due to Temperature and Load Variation (78-GT-158) (A) **Ag 115**
A Study of Chemical Reactivity in Ceramic Heat Exchangers (78-GT-118) (A) **Ag 110**
A Study of Thermal Fatigue Life Prediction of Air-Cooled Turbine Blades (78-GT-63) (A) **JI 95**
A Successful Technology Expands Application **Je 86**
Synthesis of Blade Flutter Vibratory Patterns Using Stationary Transducers (78-GT-160) (A) **Ag 116**
Synthetic Fuels Derived from Coal for Marine Applications (78-GT-20) (A) **JI 88**
Teaching of the Fluid Mechanics of Turbomachines (78-GT-161) (A) **Ag 116**
Technical and Economic Objectives for the Development of Advanced Combined Cycles for Use with Coal-Derived Fuels (78-GT-101) (A) **Ag 108**
Telemetry for Rotating Measurements on Turbomachinery (78-GT-105) (A) **Ag 108**
Ten Years' Engineering Development in Gas Turbine Driven Natural Gas Compressor Stations (78-GT-74) (A) **JI 96**
Test Procedures for Establishing the Altitude Performance of Turbofan Engines to Validate Contractual Guarantees (78-GT-42) (A) **JI 92**
The Three-Dimensional Flow and Blade Wake in an Axial Plane Down-stream of an Axial Compressor Rotor (78-GT-66) (A) **JI 95**
Through Flow Analysis of Centrifugal Compressors (78-GT-110) (A) **Ag 109**
Time-Phased Development Methodology—The Key For Reliable Engines In Future Military Aircraft Weapons Systems (78-GT-167) (A) **Ag 116**
Training in the Gas Turbine Field in Belgium, in France, in Italy (78-GT-169) (A) **Ag 117**
Transpiration Air Protected Turbine Blades—An Effective Concept to Achieve High Temperature and Erosion Resistance for Gas Turbines Operating in an Aggressive Environment (78-GT-100) (A) **Ag 108**
Turbine Blade Tip Clearance Measurement Utilizing Borescope Photography (78-GT-164) (A) **Ag 116**
Turbine Engine Automated Trim Balancing and Vibration Diagnostics (78-GT-129) (A) **Ag 112**
The Use of Gas Turbine Laboratories in Teaching Engineering and Non-Engineering Students (78-GT-180) (A) **S 75**
USS Oliver Hazard Perry (FFG-7) Guided Missile Frigate Propulsion System Land Based Test Site Operational Experience (78-GT-150) (A) **Ag 115**
Vaned Diffuser Inlet Flow Conditions for a High Pressure Ratio Centrifugal Compressor (78-GT-50) (A) **JI 93**
Vaneless Diffuser Flow with Extremely Distorted Inlet Profile (78-GT-47) (A) **JI 92**
Weak Extinction Limits of Turbulent Flowing Mixtures (78-GT-144) (A) **Ag 114**
Wide Range Operation of Advanced Low NO_x Aircraft Gas Turbine Combustors (78-GT-128) (A) **Ag 112**

Gas-Turbine Combustion Chamber Flows
Computations of Three-Dimensional Gas-Turbine Combustion Chamber Flows (78-GT-142) (A) **Ag 114**

Gas Turbine Combustor
Development of a Compact Gas Turbine Combustor to Give Extended Life and Acceptable Exhaust Emissions (78-GT-146) (A) **Ag 114**
Wide Range Operation of Advanced Low NO_x Aircraft Gas Turbine Combustors (78-GT-128) (A) **Ag 112**

Gas Turbine Components
Hot Corrosion of Gas Turbine Components (78-GT-82) (A) **Ag 106**

Gas Turbine Engine
Description and Performance of a 7000-Shp Marine Gas Turbine Engine (78-GT-188) (A) **S 76**
Full Authority Digital Electronic Control—Highlights of Next Generation Propulsion Control Technology (78-GT-165) (A) **Ag 116**
Recent Developments in Sensors for the Gas Turbine Engine (78-GT-52) (A) **JI 94**

Gas Turbine Engines
Electronic Controls of Gas Turbine Engines in Fighting Vehicles (78-GT-48) (A) **JI 93**
Pressure Instrumentation for Gas Turbine Engines—A Review of Measurement Technology (78-GT-148)

(A) **Ag 114**
Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) (A) **Ja 109**

Gas Turbine Field
Training in the Gas Turbine Field in Belgium, in France, in Italy (78-GT-169) (A) **Ag 117**

Gas Turbine Generating Unit
Nonlinear Digital Simulation and Minimum Fuel Control of a Jet Type Gas Turbine Power Generating Unit (78-GT-43) (A) **Ji 92**

Gas Turbine Inlet
Marine Gas Turbine Inlet and Exhaust Systems for the R.N. (78-GT-190) (A) **S 75**

Gas Turbine Laboratories
The Use of Gas Turbine Laboratories in Teaching Engineering and Non-Engineering Students (78-GT-180) (A) **S 75**

Gas Turbine Power Plants
The Closed-Cycle Turbine—Present and Future Prospectives for Fossil and Nuclear Heat Sources (78-GT-102) (A) **Ag 108**
Gas Turbine Commissioning Procedure (78-GT-54) (A) **Ji 94**

Gas Turbine Service
One Manufacturer's View of Gas Turbine Service (78-GT-49) (A) **Ji 93**

Gas Turbine Stator
Measurement of Heat-Transfer Rate to a Gas Turbine Stator (78-GT-119) (A) **Ag 110**

Gas Turbines
Alternative Closed-Cycle Gas Turbine System Design Considerations for Ship Propulsion Applications (78-GT-18) (A) **Ji 89**
An Analysis Procedure for the Validation of On-Site Performance Measurements of Gas Turbines (78-GT-152) (A) **Ag 115**
Annular Diffuser Performance for an Automotive Gas Turbine (78-GT-147) (A) **Ag 114**
Application of an Eigenfuction Expansion to the Determination of Stress-Intensity Factors (77-WA/GT-1) (A) **Ap 100**
An Automated Method for the Continuous Determination of Total Sodium in Fuel Oil (78-GT-92) (A) **Ag 107**
Automotive Gas Turbines (C) **Ag 50**
Ceramic Heat Exchangers May Save Petroleum (BTR) **F 59**
Combustion Turbines-Economic Choice (77-JPGC-GT-4) (A) **Mr 93**
Commercial Powerplant Design Development for the Coal Fired Combined Cycle (77-JPGC-GT-6) (A) **Mr 93**
The Compact Industrial Gas Turbine—Recent Technical Improvements (78-GT-49) (A) **Ji 91**
Compact Metallic and Ceramic Recuperators for Gas Turbines (78-GT-62) (A) **Ji 95**
The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) (A) **Ag 113**
Conceptual Design of a Coal-Fueled, Fluid Bed Combined Cycle Power Plant (77-WA/Ener-11) (A) **My 95**
Demonstration of Ceramic Design Methodology for a Ceramic Combustor Liner (78-GT-137) (A) **Ag 113**
Design and Development of a Low Emission Combustor for a Car Gas Turbine (78-GT-155) (A) **Ag 115**
Design of a Family of Packages for A 75,000-kW Industrial Gas Turbine (78-GT-37) (A) **Ji 91**
Design of a High Efficiency Combined Cycle Electric Power Plant for Low Btu Coal-Gas (78-GT-125) (A) **Ag 111**
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) (A) **Ji 90**
Development and Closed-Loop Testing of High Efficiency Compressors for Use with a 7000-kW Gas Turbine (78-GT-189) (A) **Ag 117**
Development of the Garrett GTPF990—A 5000-Horsepower Marine and Industrial Gas Turbine Engine (78-GT-44) (A) **Ji 92**
Development of Gas Turbine Performance Seeking Logic (78-GT-13) (A) **Ji 88**
Development of 25,000 kW Class Two-Shaft Gas Turbine (77-Pet-43) (A) **Ja 102**
Development of a Water-Cooled Gas Turbine (78-GT-72) (A) **Ji 96**
A Digital Approach to Industrial Gas Turbine Control (78-GT-39) (A) **Ji 91**
A Digital Fuel Control System for Gas Turbines (78-GT-99) (A) **Ag 108**
Dynamic Response Testing of Gas Turbines (78-GT-31) (A) **Ji 90**
Effect of Slip on Response of a Vibrating Compressor Blade (77-WA/GT-3) (A) **Ap 100**
The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) (A) **Ag 106**
The Effects of Fuel Bound Nitrogen Concentration and Water Injection on NO_x Emissions from a 75-MW Gas Turbine (78-GT-89) (A) **Ag 107**
The Effects of Smoke Suppressant and Corrosion Inhibiting Fuel Additives on the Particulate and Gaseous Emissions from a Utility Gas Turbine (78-GT-64) (A) **Ji 95**
Effects of Steam Injection on the Performance of Gas Turbine Power Cycles (78-GT-11) (A) **Ji 87**
Erosion and Its Effect on a Water-Cooled Turbine (78-GT-123) (A) **Ag 111**
Evalustion Program for New Industrial Gas Turbine Materials (78-GT-145) (A) **Ag 114**
Evaluation of a Water-Cooled Gas Turbine Combined Cycle Plant (78-GT-77) (A) **Ag 105**
An Example of Additive Damping as a Cost Savings Alternative to Redesign (77-WA/GT-2) (A) **Ap 100**
An Experimental Evaluation of a Single-Stage Water-Cooled Gas Turbine (77-JPGC-GT-2) (A) **Mr 92**
Fuel Flow Elements for Automotive and Small Industrial Gas Turbines (78-GT-17) (A) **Ji 88**
Full Load Tests of the 80-MW Gas Turbine V 93.2 Using a Water Brake (78-GT-68) (A) **Ji 95**
Future Prospects for Naval Propulsion Gas Turbines (78-GT-106) (A) **Ag 109**
Gas Turbine Combustor Cooling by Augmented Backside Convection (78-GT-33) (A) **Ji 90**
Gas Turbine Education and Research Programs in German Universities (78-GT-171) (A) **Ag 117**
The Gas Turbine Waste Heat Recovery System and the U.S. Navy (78-GT-170) (A) **Ag 116**
Grid Connected Electrical-Thermal (Cogeneration) Energy System for University of California, Davis, California (78-GT-134) (A) **Ag 112**
High-Efficiency Gas Turbine (IF) **O 60**
High Temperature Turbine Research Module (77-GT-73) (A) **Ag 105**
The High Temperature Water Cooled Gas Turbine in Combined Cycle with Integrated Low Btu Gasification (77-JPGC-GT-7) (A) **Mr 93**
Hot Corrosion in Gas Turbines (77-WA/Fu-3) (A) **My 92**
Influences on Exhaust Emissions From Automotive Gas Turbines (78-GT-85) (A) **Ag 106**
An Investigation of Turbine Erosion by Combustor Generated Carbon in a Lightweight Marine Gas Turbine (78-GT-96) (A) **Ag 107**
A Low-Risk Approach to the High-Temperature Turbine (77-WA/Ener-10) (A) **My 94**
Marine Gas Turbines in the Royal Navy 1976-1978 (78-GT-197) (A) **S 76**
Marine Spey—SM1A Propulsion Module (78-GT-58) (A) **Ji 94**
A Microprocessor Based Hierarchical Control System for Gas Turbines (78-GT-124) (A) **Ag 111**
Navy Marine Power Plant (BTR) **Ja 56**
A New Approach to Planning with Gas Turbines (77-JPGC-GT-3) (A) **Mr 93**
A New Concept for the Development of Coal Burning Gas Turbines (78-GT-40) (A) **Ji 91**
Next CIMAC Meeting in Vienna **N 99**
Nonsteady Operational Behavior of Single-Shaft and Two-Shaft Closed-Cycle Gas Turbines (78-GT-15) (A) **Ji 88**
Nuclear Gas Turbine Power Plant Activities in the United States (77-JPGC-GT-5) (A) **Mr 93**
Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal (77-WA/Ener-9) (A) **My 94**
Operating Experience with the Gas Turbine Powered LNG/Ethylene Carrier "Lucian" (78-GT-35) (A) **Ji 91**
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) (A) **Ji 89**
Problems and Operating Experiences with Gas Turbines Burning Residual and Crude Oils (78-GT-103) (A) **Ag 108**
Problems and Progress in Developing the Automotive Gas Turbine **My 40**
Prospects for the Gas Turbine in the U.K. Gas Transmission System (78-GT-53) (A) **Ji 94**
The Prospects for Lightweight Ship Propulsion Systems (78-GT-179) (A) **S 74**
Prototype Tests of a New 5-MW Industrial Gas Turbine (78-GT-131) (A) **Ag 112**
A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbines (78-GT-132) (A) **Ag 112**
The Radial Turbine as a Ceramic Component (78-GT-178) (A) **S 75**
Rapid Positive Load Changes by Gas Injection in Closed Gas Turbine Cycles (78-GT-8) (A) **Ji 87**
Recent Experience on Centrifugal Compressors for Small Gas Turbines (78-GT-193) (A) **S 76**
The Reliability of Gas Turbine Powered Compressor Units (78-GT-27) (A) **Ji 90**
Requirements for Educational Gas Turbines (78-GT-76) (A) **Ag 105**
The Role of the Recuperator in High Performance Gas Turbine Applications (78-GT-46) (A) **Ji 92**
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) (A) **Ji 89**
A Simple Method for the Prediction of Wall Temperatures in Gas Turbines (78-GT-90) (A) **Ag 107**
Startup and Initial Operating Experience of Braintree's 85-Megawatt Combined-Cycle Unit (77-JPGC-GT-1) (A) **Mr 92**
Strength Characterization of Various Silicon Base Turbine Materials (77-WA/GT-4) (A) **Ap 100**
Ten Years' Engineering Development in Gas Turbine Driven Natural Gas Compressor Stations (78-GT-74) (A) **Ji 96**
Test Results of a New Distillate Fuels Purification System (78-GT-203) (A) **S 77**
Transpiration Air Protected Turbine Blades—An Effective Concept to Achieve High Temperature and Erosion Resistance for Gas Turbines Operating in an Aggressive Environment (78-GT-100) (A) **Ag 108**
Tubular Gas Turbine Recuperators (77-WA/HT-8) (A) **Ap 102**
The Utilization of High-Temperature Gas Turbines in Integrated Coal-Derived Fuel Combined Cycles (77-WA/Ener-12) (A) **My 95**

Gas Wells
Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) (A) **Ja 101**

Gasdynamics
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) (A) **O 101**

Gases
Comparison of Analytical Model with Approximate Models for Total Band Absorption and its Derivative (78-HT-15) (A) **O 93**
Decay of the Argon Plasma Jet Surrounded by Ar, He, N_2 and H_2 Gases (78-HT-12) (A) **O 93**
The Effectiveness of Flue Gas Desulfurization Systems in Reducing Power Plant Ambient Air Quality Impacts (77-JPGC-Pwr-6) (A) **Mr 88**
Efficient Cleaning of Hot Gases (ES) **Ji 22**
Geothermal Hydrogen (BTR) **Ja 62**
Heat and Air Conditioning from Factory Trash (BTR) **Ja 58**
Heat Conduction Experiments in Rarefied Gases Confined Between Two Concentric Cylinders (78-HT-34) (A) **O 96**
Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) (A) **Ap 98**
Methane from Manure (ES) **Ji 22**
Radiative Heat Transmission from Nonluminous Gases. Computational Study of the Emissivities of Carbon Dioxide (78-HT-16) (A) **O 94**

Gasification
Advanced Gasification in Appalachia (ES) **Ag 23**
Combined Cycles for Operation on Coal Derived Fuels with High-Temperature Combustion Turbines (77-WA/Ener-14) (A) **My 95**
Studies, Studies, and More Studies (ES) **Ag 23**
Underground Gasification of Coal (IF) **N 73**

Gasoline Fueled Heater
A New Light-Weight Warm-Air Blower for Rapidly Pre-Heating Cold-Soaked Equipment (77-WA/HT-20) (A) **Ap 103**

Gasparetto, M. On the Flutter Instability of a Suspension Bridge Using the Finite Element Method (77-DET-140) (A) **F 128**

Gassman, M. P. Registration Observations (C) **Mr 46**

Gatzoulis, J. Synthetic Fuels Derived from Coal for Marine Applications (78-GT-20) (A) **Ji 88**

Gaus, M. P. Anatomy of Research Projects—Objective, Organization, Delivery (78-DET-72) (A) **D 94**

Gear Calculation Methods
Advanced Industrial Turbine Gear Calculation Methods (78-GT-174) (A) **S 74**
Gear Design
Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) (A) **F 131**
Low-Cycle Fatigue and Ultimate Strength Related to Gear Design (77-DET-66) (A) **Ja 113**
On the Use of Strain Energy Density Fracture Criterion in the Design of Gears Using Finite Element Method (77-DET-158) (A) **F 129**
Gear Differentials
Bevel Gear Differentials for Industrial Applications (77-DET-159) (A) **F 129**
Gear Dynamics
An Experimental and Theoretical Study of the Effects of Simulated Pitch Line Pitting on the Vibration of a Geared System (77-DET-123) (A) **F 126**
Gear Material
Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) (A) **Ja 112**
Gear Mesh Excitation
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) (A) **Ja 113**
Gear Noise Spectra
Gear Noise Spectra—A Rational Explanation (77-DET-38) (A) **Ja 111**
Gear Pitting
The Practical Significance of Designing to Gear Pitting Fatigue Life Criteria (77-DET-122) (A) **F 126**
Gear Pumps
Kinematics of an Epicyclic Gear Pump (78-DET-13) (A) **D 88**
Gear Scoring
Model for Gear Scoring (77-DET-60) (A) **Ja 113**
Gear Skiving
The Geometrical Analysis on Gear Skiving of Internal Gears (77-DET-133) (A) **F 127**
Gear Structure
Heat Treatment, Structure, and Properties of Standard and Modified Vasco X-2 Carburizing Grade Gear Steels (77-DET-151) (A) **F 129**
Gear Systems
Coupling Selection for Synchronous Motor Drive Systems (77-DET-131) (A) **F 127**
Gear Teeth
Bending Fatigue Strength of Gear Teeth under Random Loading (77-DET-120) (A) **F 126**
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part I: Analysis (77-DET-52) (A) **Ja 112**; Part 2: Experimental Investigation (77-DET-53) (A) **Ja 112**
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-46) (A) **Ja 112**
Gear Testing Machine
Super-Precision Single-Flank Gear Testing Machine (77-DET-118) (A) **F 126**
Gear Trains
Design Algorithms for Compound Gear Train Rotors (78-DET-62) (A) **D 93**
Design Analysis of an Epicyclic Rotary Pump Mechanism (78-DET-46) (A) **D 92**
Gear Transmission
Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) (A) **F 131**
Gear Units
Optimal Synthesis of Double Reduction Bevel/Helical Gear Units by Nonlinear Programming (77-DET-172) (A) **F 130**
Optimal Synthesis of Double Reduction Helical Gear Units by Nonlinear Programming (77-DET-171) (A) **F 130**
Gearbox
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) (A) **F 124**
Geared Device
Vibrations and Vibrationless Rotation-Reciprocation Internally Geared Device, and on Vibrationless Chain Saw Utilizing This Device (77-DET-154) (A) **F 129**
Geared Five-Bar Mechanisms
Degree of the Input-Output Equations of Certain Geared Five-Bar Mechanisms (78-DET-27) (A) **D 90**
Geared Mechanisms
Multistage Geared Geneva Mechanism (78-DET-18) (A) **D 89**
Geared Train
Critical Speeds, Stability, and Response of a Geared Train of Rotors (77-DET-30) (A) **Ja 110**
Gearing
Standard-Pitch Gearing (77-DET-56) (A) **Ja 112**
A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) (A) **Ja 113**
A Study on Involute Worm Gearing on Non-Right Axial Angle (77-DET-36) (A) **Ja 110**
Gears
The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) (A) **Ja 112**
Effect of Number of Gashes in Hob Accuracy of Generated Tooth Profile of Worm Gear (77-DET-55) (A) **Ja 112**
The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) (A) **Ja 113**
Lattice Contact in Generated Spiral Bevel Gears (77-DET-63) (A) **Ja 113**
Manufacturing Method of Large-Size Marine High-Pressure Gears (77-DET-35) (A) **Ja 110**
Never Too Old For Another Gear Idea! **Mr 20**
Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) (A) **Ja 112**
Standard-Pitch Gearing **Ap 41**
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) (A) **Ja 114**
On the Surface Durability of Gears (77-DET-58) (A) **Ja 113**
Transmission Errors and Noise of Spur Gears Having Uneven Tooth Profile Errors (77-DET-51) (A) **Ja 112**
Using Bevel Gear Differentials **My 35**
Wear of Gears of Double Circular-Arc Tooth-Profile (77-DET-59) (A) **Ja 113**
Gecit, M. R. The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) (A) **Je 108**
Gehlen, P. C. Analysis of Crack Arrest in Reactor Pressure Vessels (78-Mat-16) (A) **O 100**
Gehri, D. C. The Atomics International Open Loop and Closed Loop Aqueous Carbonate Processes—A Current Assessment (78-JPGC-Pwr-15) (A) **D 83**
Generated Tooth Profile
Effect of Number of Gashes in Hob on Accuracy of Generated Tooth Profile of Worm Gear (77-DET-55) (A) **Ja 112**
Generating Stations
The Nuclear Equipment Arrangement of Darlington Generating Station (78-NE-11) (A) **N 115**
Generating Systems
Will Japan be First with Solar Wave Power? (BTR) **Ja 53**
Generator Coils
Computer-Run Taping Machine for Generator Coils (BTR) **O 50**
Generator Cooling
On-Site Generation of Hydrogen for Generator Cooling (78-GT-196) (A) **S 76**
Generators
Closed-End Cylindrical Shell Under Line Load Along a Generator (78-PVP-85) (A) **N 122**
Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**
The Development of a Rotating Liquid Helium Flow Circuit (77-WA/HT-37) (A) **My 99**
An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Jl 94**
Electrical Generator Uses Ocean Waves (BTR) **Je 53**
ERDA's Coal-Oil Mixture Combustion Program (77-WA/Fu-4) (A) **My 93**
Experimental Evaluation of Duplex Tube Heat Transfer Characteristics Stimulating Steam Generator External Heating (77-JPGC-NE-9) (A) **Mr 90**
An Experimental Evaluation of the Flow Distribution in the CRBRP Modular Steam Generator (77-JPGC-NE-12) (A) **Mr 91**
Investigations into the Sodium-Steam Surface Interaction on a Stagnant Pool (77-JPGC-NE-11) (A) **Mr 91**
20-MVA Supercold Generator (BTR) **Ap 58**
Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) (A) **Mr 90**
Space Charge Reduction in EHD Via Fluidic Switching (77-WA/Ener-3) (A) **My 93**
Geneva Mechanisms
General Forms of Index Ratios and Generation of Variable Index Ratios by Series-Connected Geneva Mechanisms with Single or Multiple Driving Pins (78-DET-28) (A) **D 90**
Multistage Geared Geneva Mechanism (78-DET-18) (A) **D 89**
A New Interpretation for the Dynamic Phenomena Associated with Geneva Mechanisms (78-DET-38) (A) **D 91**
Synthesis of the Four-Bar Mechanisms for the Generation of Symmetrical "V" Shaped Coupler Curves of specified Flank Angles for Linkage-Geneva Mechanisms (78-DET-52) (A) **D 91**
Geomechanical Structural Analysis
Fracture Discontinuities and Structural Analysis in Resource Recovery Endeavors (77-Pet-32) (A) **Ja 101**
Geometric Design Parameters
A Strategy for the Optimum Design of Acoustic Space (77-DET-44) (A) **Ja 111**
Geometric Effects
Influence of Geometric Effects on the Aspect Ratio Optimization of Axial Turbine Bladings (78-GT-173) (A) **S 74**
Geometric Factors
On the Surface Durability of Gears (77-DET-58) (A) **Ja 113**
Geometric Nonlinearities
Consideration of Local Piping Stiffness in Dynamic Analysis by Piping Systems with Nonlinear Restraints (78-PVP-109) (A) **N 125**
Geometric Programming
Slider-Crank Mechanism with a Flexibly Attached Slider—Optimum Synthesis Via Geometric Programming (78-DET-31) (A) **D 90**
Geometrical Flexibility
An Application of the Substructuring Method to Heat Transfer (77-PVP-32) (A) **Ja 108**
George, P. T. An Evaluation Technique for Determining the Cost Effectiveness of Condition Monitoring Systems (78-GT-166) (A) **Ag 116**
George, W. K., Jr. Natural Convection Turbulent Boundary Layers Next to Heated Vertical Surfaces (77-WA/HT-32) (A) **Ap 105**
Geothermal Applications
Natural Gas Liquids Center (IF) **Ap 64**
Geothermal Brine
Hybrid Geothermal—Fossil Power Plants **D 28**
Geothermal Drill Bit
Geothermal Drill Bit Improvement—Specific Application to the Geysers (77-Pet-67) (A) **Ja 105**
Geothermal Energy
Geothermal Energy: Heat Extraction From Hot Dry Rock Masses (77-Pet-41) (A) **Ja 102**
Geothermal Energy is Viable Alternative, ASHRAE Meeting Hears (NR) **Ag 72**
Geothermal in New Jersey (NB) **O 68**
Hybrid Fossil-Geothermal Power Plants (77-Wa/Ener-2) (A) **My 93**
A Thermodynamic Study of Heating With Geothermal Energy (77-WA/Ener-1) (A) **My 93**
Geothermal Energy Resources
Furnace Beneath Your Feet (BTR) **S 47**
Geothermal Fluids
One Less Geothermal Worry! (ES) **Je 19**
Geothermal Hot Water
Low-Grade Thermal Energy-Conversion Joule Effect Heat Engines (78-ENAs-7) (A) **N 110**
Geothermal Power Plants
History and Development of Condensers at the Geysers Geothermal Power Plant (78-JPGC-Pwr-18) (A) **D 84**
Geothermal Reservoirs
Downhole Measurements of Thermal Conductivity in Geothermal Reservoirs (77-Pet-23) (A) **Ja 100**
Evaluating Geothermal Reservoirs (ES) **Ap 20**
Geothermal Reservoir Development (BTR) **Ja 55**
On the Stimulation of Geothermal Reservoir by Downward Hydraulic Fracturing (77-Pet-81) (A) **Ja 107**
Toward a Hydrogen Economy (BTR) **Mr 49**
Geothermal Resources
Geothermal Hydrogen (BTR) **Ja 62**
Geothermal Roller Drill Bits
Seals for Geothermal Roller Drill Bits (77-Pet-53) (A) **Ja 103**
Geothermal Wells
Extending the Life of Geothermal Wells (ES) **Je 19**
Gerbert, G. A Complementary Large Slip Solution in V-Belt Mechanics (77-DET-162) (A) **F 130**; Load Distribution in Timing Belts (77-DET-100) (A) **F 124**
Gerdeen, J. C. Residual Ductility and Residual Stresses in Formed Heads (77-PVP-13) (A) **Ja 107**

Gerken, J. H. Glomar Challenger's Deep Water Reentry Cone/Dual Casing Hanger System (77-Pet-75) (A) **Ja 106**

German, J. G. Elections to Fellow Grade **D 80**

German Power Plants
Steam Purity in German Power Plants: Standards, Operational Data and Effects on Turbine Components (78-JPGC-Pwr-20) (A) **D 84**

Gerrels, E. E. Development of LMFBR Steam Generator Leak Protection Systems (77-WA/NE-12) (A) **Je 102**

Gershon, I. J. Time-Phased Development Methodology—The Key For Reliable Engines in Future Military Aircraft Weapons Systems (78-GT-167) (A) **Ag 115**

Gerstenkorn, G. F. Verification of High Reliability Condenser Design (77-JPGC-Pwr-14) (A) **Mr 89**

Gertsbakh, I. B. *(author)* Models of Preventive Maintenance (CB) **O 107**

Geurts, F. W. Bevel Gear Differentials for Industrial Applications (77-DET-159) (A) **F 129**; Using Bevel Gear Differentials **My 36**

Geysers
History and Development of Condensers at the Geysers Geothermal Power Plant (78-JPGC-Pwr-18) (A) **D 84**

Geysers Power Project
Geothermal Drill Bit Improvement—Specific Application to the Geysers (77-Pet-67) (A) **Ja 105**

Gharmalkar, D. R. Optical Design and Performance of an Inverted, Segmented Mirror Solar Concentrator (78-HT-32) (A) **O 96**

Giannuzzi, A. J. Radiation Effects in Boiling Water Reactor Pressure Vessel Steels (78-Mat-11) (A) **O 99**

Gibson, J. S. Correction of Optimal Parameters in Systems with Small Delays (77-WA/Aut-7) (A) **Je 103**

Giering, L. P. An Automated Method for the Continuous Determination of Total Sodium in Fuel Oil (78-GT-92) (A) **Ag 107**

Gieske, J. H. Ultrasonic Data Acquisition, Analysis, and Display by Minicomputer Aided Techniques (77-PVP-45) (A) **Ja 106**

Gilbert N. A Continuous Recirculation System for In-Bin Blending of Granular Solids (77-Pet-63) (A) **Ja 105**; Stability Design Criteria for Vessels Subjected to Concurrent External Pressure and Longitudinal Compressive Loads (78-PVP-110) (A) **N 125**

Gilmartin, M. J. Displacement Analysis of Spatial 7R Mechanisms Suitable for Constant-Velocity Transmission Between Parallel Shafts (78-DET-9) (A) **D 88**

Gilpin, R. R. Longitudinal Vortices in a Horizontal Boundary Layer in Water Including the Effects of the Density Maximum at 4°C (78-HT-25) (A) **O 94**

Ginell, W. S. Low-Grade Thermal Energy-Conversion Joule Effect Heat Engines (78-ENAs-7) (A) **N 110**

Giramonti, A. J. Conceptual Design of a Coal-Fueled, Fluid Bed Combined Cycle Power Plant (77-WA/Ener-11) (A) **My 95**

Giss, W. A. East-West Balance of Power (C) **Mr 47**

Glaser, P. Economic and Environmental Costs of Satellite Solar Power **Ja 32**

Glass Transitions
Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) (A) **F 132**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) (A) **Mr 86**

Glazik, J. L., Jr. Dynamic Finite Element Analysis of Cracked Bodies (78-PVP-94) (A) **N 123**

Glicksman, M. E. The Elastic Energy of Interacting Edge Dislocations in an Infinite Array (77-WA/APM-20) (A) **Jl 98**

Goal vs. Standards
Employment Guidelines: Desirable Goals vs. Minimum Standards (PS) **Ag 81**

Goal Programming
Application of Goal Programming to Machinability Data Optimization (77-DET-19) (A) **Ja 108**

Goar, D. A Microprocessor Based Hierarchical Control System for Gas Turbines (78-GT-124) (A) **Ag 111**

Godel, J. B. *(author)* Estimating and Project Management for Small Construction Firms (CB) **Ja 117**

Godet, M. Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) (A) **F 132**; Model for Gear Scoring (77-DET-60) (A) **Ja 113**

Goetz, G. A. Slagging and Fouling Properties of Coal Ash Deposits as Determined In a Laboratory Test Facility (77-WA/Fu-6) (A) **My 93**

Gohritz, A. Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) (A) **Ja 112**

Gold, B. Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) (A) **Ap 101**

Gold, M. Chromizing and Turbine Solid Particle Erosion (78-JPGC-Pwr-7) (A) **D 83**

Golden, R. D. Fluid-Structure Interaction Calculations for Cylinders Impacting a Water Pool (78-PVP-59) (A) **N 119**

Goldstein, R. J. Effect of Mainstream Variables on Jets Issuing From a Row of Inclined Round Holes (78-GT-138) (A) **Ag 113**

Gomah, E. M. Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) (A) **Ja 106**

Gonzalez, J. I. An Approach to Solving Controls Compartment Heating Problems on Air-Launched Missiles (78-ENAs-12) (A) **N 111**

Goodling, E. C. The Trailing Shoe Type Centrifugal Clutch—Design Principles and Characteristics (77-DET-126) (A) **F 126**

Goodling, E. C., Jr. Flexibility Analysis of Buried Pipe (78-PVP-82) (A) **N 121**

Goodman, M. A. Loading Mechanisms in Thawed Permafrost Around Arctic Wells (77-Pet-22) (A) **Ja 100**

Goolsby, D. K. Maintenance and Requalification of a Large LMFBR Component (78-JPGC-NE-1) (A) **D 84**

Gordon, H. *(editor)* Perspectives on the Energy Crisis: Mankind's Energy Challenge, Fossil Fuels, Solar, Nuclear, Regional/National Responses (CB) **Ap 106**

Gordon, J. T. Fluid-Structure Interaction Calculations for Cylinders Impacting a Water Pool (78-PVP-59) (A) **N 119**

Gore, D. C. Extended Duration Orbiter Life Support Options (78-ENAs-31) (A) **N 113**

Gossard, D. C. On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/Prod-14) (A) **Je 104**

Gottlieb, C. L. Compliance of the Human Ankle Joint (77-WA/Bio-2) (A) **Mr 97**

Goulas, A. Through Flow Analysis of Centrifugal Compressors (78-GT-110) (A) **Ag 109**

Gould, G. C. The Effects of Water Chemistry on the Reliability of Modern Large Steam Turbines (78-JPGC-Pwr-9) (A) **D 83**

Government Accessibility
What Student Interns Learn—And Teach (WW) **Ag 80**

Government Economic Measures
Japan: 7-Percent Economic Growth (IF) **Ag 66**

Government Executive Branch
Predictions for the New Year (WW) **D 64**

Government Inaction
Garbage and Government (WW) **O 74**

Government Regulations
Government Regulations Plague Consulting Engineers (NB) **Ap 71**

Graduate Programs
Survey of Ph.D Graduates in Mechanics (EN) **N 81**

Graduate Science Enrollment
Graduate Science Enrollment Stabilized in 1977 (EN) **O 69**

Graff, W. J. Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) (A) **Ja 106**

Graham, C. O., Jr. Combing of Opening Room Blends of Cotton and Polyester (77-Tex-5) (A) **F 132**

Grant, B. A Survey of Cam Manufacture Methods (78-DET-65) (A) **D 94**

Grant G. N. C. Comparison of Some Optimal Control Methods for the Design of Turbine for the Design of Turbine Blades (77-DET-43) (A) **Ja 111**

Grant, I. D. R. Two-Phase Flow on the Shell-Side of a Segmentally Baffled Shell-and-Tube Heat Exchanger (77-WA/HT-22) (A) **Ap 103**

Grant, S. J. Control of Clearance Effects (77-WA/DE-2) (A) **Mr 93**

Grants
Engineering Research Grants and Fellowships (NR) **O 65**
Fast-Track II Free for Women Engineers (EN) **N 81**
NSF Student Science Training Program (EN) **Jl 63**
Socio-Technical Project (EN) **My 74**

Granular Activated Carbon
ASME Urges EPA to Go Slowly on Drinking Water Filtration (NR) **D 52**

Granular Solids
A Continuous Recirculation System for In-Bin Blending of Granular Solids (77-Pet-63) (A) **Ja 105**

Graphic Construction
Distortion—Free Perspectives (BTR) **Ap 60**

Graphics
3-D Interactive Graphics Assist Diesel Engine Design **Mr 40**

Graphics Display System
Graphics Display System Speeds Design (BTR) **Ja 53**

Graphite Materials
Response of a Finite Thin Cylindrical Shell of Graphite Materials to a Thermal Shock (77-WA/HT-9) (A) **Ap 102**

Graphite-Reinforced Plastics
Simplified Design with Graphite-Reinforced Plastics **Je 38**

Grashof Defects
Elimination of Branch, Grashof, and Order Defects in Path-Angle Generation and Function Generation Synthesis (78-DET-16) (A) **D 89**

Gravity Force
Vibration of Cantilever Sandwich Beams (78-DE-20) (A) **O 92**

Gray, K. E. The Influence of Drying and Stress on the Permeability of Texas Lignite (77-Pet-26) (A) **Ja 101**

Gray, R. E. A Lightweight, Positive Pressure Rescue Breathing Apparatus (78-ENAs-35) (A) **D 86**

Grazzini, E. D. Testing of FFTF Fuel Handling Equipment (77-WA/NE-9) (A) **Je 101**

Green, A. E. Water Waves in a Nonhomogeneous Incompressible Fluid (77-WA/APM-27) (A) **Jl 99**

Green, D. M. A Technique for the Measurement of Burn Induced Leakage of Macromolecules in Living Tissue (77-WA/HT-46) (A) **My 100**

Green, L., Jr. Convocation Comment (C) **D 36**

Greene, D. A. Development of LMFBR Steam Generator Leak Protection Systems (77-WA/NE-12) (A) **Je 102**

Greenfield, L. P. Ride Quality of Autorack Cars (77-WA/RT-7) (A) **Mr 85**

Gregory, N. Optimization Analysis of a CCGT Nuclear Power Plant with Application to the HHT 3000 MWth Commercial Plant (HHT-Project) (78-GT-16) (A) **Jl 88**

Greiner, H. F. Design Considerations in Mechanical Face Seals for Improved Performance: Part 1 (77-WA/Lub-3) (A) **Jl 96**; Part 2 (77-WA/Lub-4) (A) **Jl 96**; Designing Mechanical Face Seals for Improved Performance: Part 1—Basic Configurations **N 38**; Part 2—Lubrication **D 18**

Greitzer, E. M. Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) (A) **Ag 109**

Grejda, F. J. Braking Duty in North American Freight Train Service and Effects on Brake Equipment, Brake Shoes and Wheels (78-RT-9) (A) **O 91**

Greiecki, C. J. Acid Digestion and Pressurization Control in Combustible Radwaste Treatment (78-NE-17) (A) **N 115**

Grid Connected System
Grid Connected Electrical-Thermal (Cogeneration) Energy Systen for University of California, Davis, California (78-GT-134) (A) **Ag 112**

Grid Selection
Grid Selection and Refinement Procedures in Finite Element Analysis (78-DE-21) (A) **O 92**

Griffiths, J. A. Analysis of a Canister Closure Design by Damage Tolerance Concepts (78-PVP-108) (A) **N 125**

Grigoriu, M. Generalized Second-Moment Reliability Analysis (78-PVP-105) (A) **N 124**

Grimes, D. L. Feasibility of an Active Control Scheme for Above Knee Prostheses (77-WA/Bio-8) (A) **Ap 98**

Grinding Force
Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) (A) **Je 106**

Grinding Operations
Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) (A) **Je 106**

Grinding Wheels
Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/Prod-27) (A) **Je 106**
Mechanics of Rotary Dressing of Grinding Wheels (77-WA/Prod-23) (A) **Je 105**

Grinding Wood
An Orthmorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) (A) **Je 107**

Grobman, J. Alternative Aircraft Fuels (78-GT-59) (A) **Jl 94**

Grobner, P. J. Results of Sulfide Stress Cracking Tests in Different Laboratories on SAE 4135 Steel Modified with 0.75 Percent Mo and 0.035 Percent Cb (77-Pet-48) (A) **Ja 103**

Grochowsky, L. D. Jet Cooling at the Rim of a Rotating Disk (78-GT-25) (A) **Ji 89**

Groff, E. G. Structure of a Turbulent Thermal Plume Rising Along an Isothermal Wall (78-HT-24) (A) **O 24**

Grondahl, C. Demonstration of Ceramic Design Methodology for a Ceramic Combustor Liner (78-GT-137) (A) **Ag 113**

Grood, E. S. Left Ventricular Area Ratios: Comparison of the Circumferential and Longitudinal Directions and Correlation with Left Ventricular Function (77-WA/Bio-11) (A) **Ap 99**

Gross, M. B. Fluid-Structure Interaction Calculations for Cylinders Impacting a Water Pool (78-PVP-59) (A) **N 119**

Gross, R. A. Fusion Energy (77-WA/NE-1) (A) **Je 100**

Grothues, K. G. Elections to Fellow Grade **Ap 90**

Ground Vehicles
Omnidirectional Wheel (BTR) **My 58**

Group Life Insurance
How Much Life Insurance Should You Have, and What Kind? (PS) **S 65**
More Insurance Now Available for Members **D 77**

Grover, L. K. Cross Flow Induced Vibrations in a Tube Bank (78-PVP-25) (A) **O 104**

Growth Rate
Improving Productivity in the Third Century (77-WA/Mgt-2) (A) **My 96**

Grubb, R. L. Non-Linear Lateral Mechanical Response of Pressurized Water Reactor Fuel Assemblies (77-WA/DE-18) (A) **Mr 95**

Grundy, R. F. *(editor)* Magnetohydrodynamic Energy for Electric Power Generation (CB) **Ji 101**

Guided Missile System
USS Oliver Hazard Perry (FFG-7) Guided Missile Frigate Propulsion System Land Based Test Site Operational Experience (78-GT-150) (A) **Ag 115**

Guided Projectiles
Missile Seeker Can Penetrate Fog (BTR) **Ap 61**

Guidelines
Reducing Costs With Coordinated Advanced Design and Production Techniques (78-DE-9) (A) **S 72**
Guidelines to Professional Employment for Engineers and Scientists: Second Edition **Ap 36**

Guitar Strings
New Rolling Key Drive for Light Torque Applications (BTR) **Ag 62**

Gujati, B. D. The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) (A) **Mr 87**

Gulf Coast Drilling
Stratapax Drill Bit for Gulf Coast Drilling (77-Pet-74) (A) **Ja 106**

Gulf of Mexico
Gas From the Gulf (ES) **Ja 18**

Gumkowski, S. Experimental Study of Evaporation and Breakdown of Thin Liquid Films Driven by Shear Stresses (77-WA/HT-7) (A) **Ap 102**

Gunderson, M. A Thermodynamic Study of Heating With Geothermal Energy (77-WA/Ener-1) (A) **My 93**

Gunther, J. Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-GT-185) (A) **S 75**

Gupta, A. K. Rational and Economical Multicomponent Seismic Design of Piping Systems (78-PVP-84) (A) **N 122**

Gupta, G. D. Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) (A) **O 101**

Gupta, K. Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) (A) **Ja 114**

Gupta, K. C. Chebychev Approximations of Finite Point Sets with Application of Planar Kinematic Synthesis (78-DET-25) (A) **D 90**; Chebychev Approximations of Spatial Point Sets Using Spheres and Planes (78-DET-4) (A) **D 88**

Gupta, P. K. DREB: A New Tool for Rolling Bearing Performance Simulation (78-DE-15) (A) **S 73**

Gwinn, J. M. Modal Summing Rules for Seismic Qualification (78-PVP-32) (A) **O 105**

Gyekenyesi, J. P. Stress Analysis and Stress-Intensity Factors for Finite Geometry Solids Containing Rectangular Surface Cracks (77-WA/APM-5) (A) **Ji 97**

Gyobu, I. Performance Investigations of Large Capacity Centrifugal Compressors (78-GT-3) (A) **Ji 87**

Gyorki, J. R. Instrumentation for Controlling and Monitoring Environmental Control and Life Support Systems (78-ENAs-40) (A) **D 87**

H

Habec, R. The Horizontal Plate Filter as a Torsional Vibration System with Vibration Absorption (77-DET-86) (A) **F 123**

Haberstroh, R. D. Heat Transfer in Packed Beds at Low Reynolds Number (78-HT-46) (A) **O 97**; A Passive Technique for Enhancing Thermal Stratification in Liquid Storage Tanks (78-HT-50) (A) **O 97**

Haddad, M. H. L. Fatigue Crack Propagation of Short Cracks (78-Mat-7) (A) **O 100**

Haddad, S. D. Mechanically Induced Noise and Vibration in the Automotive Diesel Engine (77-DET-37) (A) **Ja 110**

Haemer, E. J. On-Site Generation of Hydrogen for Generator Cooling (78-GT-196) (A) **S 76**

Hafer, A. A. Elections to Fellow Grade **Ja 98**

Hagan, D. Rapid Algorithms for Kinematic and Dynamic Analysis of Planar Rigid Linkages with Revolute Joints (78-DET-64) (A) **D 94**

Hagerty, D. J. *(author)* Environment Assessments and Statements (CB) **F 135**

Hahn, G. T. Analysis of Crack Arrest in Reactor Pressure Vessels (78-Mat-16) (A) **O 100**

Haines, K. A. Torsional Vibrations of a Boiler Feed Pump (77-DET-28) (A) **Ja 110**

Haizlip, L. D. Analytical and Experimental Stress Analysis of a Cylinder-to-Cylinder Structure (77-PVP-11) (A) **Ja 108**

Haji-Sheikh, A. An Iterative Approach to the Solution of Inverse Heat Conduction Problems (77-WA/TM-2) (A) **My 95**

Hajnal, T. E. Economic Evaluation Technique of Selecting Turbines for Natural Gas Pipelines (78-GT-67) (A) **Ji 95**

Halbloster, J. An Evaluation of New Filter/Demineralizer Precoat Materials (78-JPGC-NE-16) (A) **D 86**

Half-Bead Weld Repairs
Half-Bead Weld Repairs for In-Service Applications (78-PVP-10) (A) **O 102**

Hall, R. B. Rear Surface Noncontact Measurements of Laser Target Temperatures (78-HT-58) (A) **O 98**

Hall, R. E. Evaluation of Two Industrial Boilers with Combustion Modifications for Reduced Pollutant Emissions (77-WA/APC-1) (A) **My 101**

Halle, H. Crossflow-Induced Vibration of a Row of Circular Cylinders in Water (77-JPGC-NE-4) (A) **Mr 90**

Halloran, J. Torsional Response of Compressor Shaft Systems During Synchronous Motor Startup. Part I—Analytical Model (77-Pet-49) (A) **Ja 103**; Part II—Field Measurement Techniques (77-Pet-60) (A) **Ja 104**

Harter, V. P. West Coast—Mid Continent Pipeline Project. (Engineering/Management Phases for Conversion of Natural Gas Transmission Systems to Crude Oil Transportation) (77-Pet-65) (A) **Ja 105**

Ham, I. Machine Loading and Product-Mix Analysis for Group Technology (77-WA/Prod-19) (A) **Je 105**

Hama, Y. A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbines (78-GT-132) (A) **Ag 112**

Hamano, M. Film Cooling Effectiveness for Injection From Multirow Holes (78-GT-32) (A) **Ji 90**

Hamed, A. Erosion Study in Turbomachinery Affected by Coal Ash Particles (78-GT-136) (A) **Ag 113**; A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) (A) **Ap 94**

Hamilton, J. F. Vibration and Noise Reduction of Beams and Plates by Use of Boundary Damping and Stiffness (77-DET-155) (A) **F 129**

Hamilton, J. J. Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) (A) **S 74**

Hamilton, R. W. A Specialized Microprocessor System for Decompression Management of Deep Diving (77-WA/Oce-7) (A) **Ap 93**

Hammer
Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) (A) **Ja 106**

Hamrock, B. J. Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) (A) **Mr 86**

Hancinsky, O. A. Feasibility of Local Stress Relieving Close to Main Shell of a Large Vessel (78-NE-2) (A) **N 114**

Handicap Aid
WPI Student Designs Typewriter to Aid Handicapped (EN) **My 75**

Handling Equipment
Seminar and Forum Planned with National Material Handling Show (NR) **My 71**

Handling Machines
Testing of FFTF Fuel Handling Equipment (77-WA/NE-9) (A) **Je 101**

Handling Methods
Mechanical Systems for Handling Drill Pipe, Riser, and Casing (77-Pet-77) (A) **Ja 106**

Handling System
Computerized Handling System (BTR) **Ap 51**

Handman, S. E. A Continuous Recirculation System for In-Bin Blending of Granular Solids (77-Pet-63) (A) **Ja 105**

Haney, R. S. Generalized Force Curve Shapes for Structural Synthesis of Joint Torque Systems to Produce a Desired Dynamic Motion Time Response of a 4R-Bar (78-DET-39) (A) **D 92**

Hanger Systems
Glomar Challenger's Deep Water Reentry Cone/Dual Casing Hanger System (77-Pet-75) (A) **Ja 106**

Hanks, J. A Study in Pneumatic Brake Selection (77-DET-127) (A) **F 126**

Hannemann, R. J. Recent Advances in Drop-wise Condensation Theory (77-WA/HT-21) (A) **Ap 103**

Hannoyer, M. J. Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) (A) **F 123**

Hardened Steels
The Pitting Performance of Hardened Steels (77-DET-39) (A) **Ja 111**

Hardening Hysteresis
The Steady-State Response of Systems With Hardening Hysteresis (77-DET-71) (A) **Ja 109**

Hardt, D. E. Determining Muscle Forces in the Leg During Normal Human Gait—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) (A) **Ap 98**

Harmonic Oscillations
Dynamic Stall of An Airfoil with Leading Edge Bubble Separation Involving Time Dependent Re-Attachment (78-GT-194) (A) **S 78**

Harmonic Waves
On Harmonic Waves in Layered Composites (77-WA/APM-30) (A) **Ji 99**

Harnoy, A. An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) (A) **Mr 87**

Harris, J. D. Morrison and Parry Seals for Water Pressures up to 345 MPa (78-PVP-13) (A) **O 103**

Harris, L. Condensate Reheating and Separate Reheating Hotwells for Central Station Main Condensers (78-JPGC-Pwr-14) (A) **D 83**; Selecting an Optimum Rating for Feedpump Turbine Drivers (78-JPGC-Pwr-4) (A) **D 82**

Harrison, D. G. Jet Partitioned Fluid Amplifiers (77-WA/Fics-2) (A) **Ap 97**

Harrison, H. D. Techniques for Measuring Wheel/Rail Forces with Trackside Instrumentation (77-WA/RT-9) (A) **Mr 85**

Harrison, P. G. A Digital Fuel Control System for Gas Turbines (78-GT-99) (A) **Ag 108**

Harrison, R. A. The Reliability of Gas Turbine Powered Compressor Units (78-GT-27) (A) **Ji 90**

Hart, R. R. A Simple Test of the Effectiveness of Stress Relief Annealing Spring Materials (77-WA/DE-21) (A) **Mr 95**

Hart-Smith, L. J. Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) (A) **Je 109**

Hartmann MHD Flow
Radiative Transfer in Hartmann MHD Flow (78-HT-18) (A) **O 94**

Hartnett, M. J. A New Approximate Approach for Elastic Body Contact in Roller Bearings (78-DE-18) (A) **S 74**

Hartung, H. F. Ultrasonic Monitoring of Growth of Part-Through Thickness Defects at 290°C (78-NE-12) (A) **N 116**

Harvey, D. Rapid Algorithms for Kinematic and Dynamic Analysis of Planar Rigid Linkages with Revolute Joints (78-DET-64) (A) **D 94**

Harvey, G. R. Instrument Design for Vitreous Survey Via the Pars Plana (77-WA/Bio-1) (A) **Mr 97**

Harvill, L. R. *(author)* Technical Report Standards: How To Prepare and Write Effective Technical Reports (CB) **D 96**

Hashish, M. High Energy Water Jet Cutting Equations for

Wood (77-WA/Prod-18) (A) **Je 104**; Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) (A) **Je 107**

Haslett, R. A. Thermal Energy Storage Heat Exchanger Design (78-ENAs-30) (A) **D 86**

Haslinger, K. H. Forced Vibration Testing of a Nuclear Fuel Assembly (77-DET-141) (A) **F 128**

Hassberger, J. A. Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**

Hasselman, T. K. Model Verification of Mixed Dynamic Systems (77-DET-85) (A) **F 123**

Hassett, S. E. Thermal/Hydraulic Design of Dry-Saturated Steam Evaporators for a Large Fast Breeder Reactor Plant (78-JPGC-NE-7) (A) **D 85**

Hati, S. K. Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/Prod-4) (A) **My 103**

Hatton, A. P. A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**

Haug, E. J. Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) (A) **Ja 111**

Haug, E. J., Jr. Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) (A) **Ja 108**

Hawkins, D. Costly Improvement (C) **O 45**

Hawthorne, J. R. Significance of Delta Ferrite Content to Fatigue Crack Growth Resistance of Austenitic Stainless Steel Weld Deposits (78-PVP-9) (A) **O 102**

Hawthorne, W. R. Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**

Hay, A. E. A Planar Fluidic Flowmeter Applicable to Respiratory Flows (77-WA/Flcs-1) (A) **Ap 97**

Hayakawa, T. An Analytical Method for Fixed Tubesheet Heat Exchangers and Its Experimental Verification (78-PVP-77) (A) **N 120**

Hayami, H. Experimental Study on Flow in a Supersonic Centrifugal Impeller (78-GT-2) (A) **Jl 87**

Hayashi, K. Bending Fatigue Strength of Gear Teeth under Random Loading (77-DET-120) (A) **F 126**

Hayes, T. B. Elections to Fellow Grade **Mr 82**

Haynie, H. T. The Formal Tradeoff Study as a Mechanical Design Tool (78-DE-4) (A) **S 72**

Hazardous Materials

Handling Hazardous Materials (NB) **Ag 75**

Hazards

Hazards of Non-ionizing Radiations (BTR) **Ja 60**

Healey, A. J. The Prediction of Passenger Riding Comfort from Acceleration Data (77-WA/Aut-6) (A) **Je 102**

Health Factors

Decision-Making for Safety and Health **Je 81**

Health-Related Uses

Health-Related Uses of Lasers (BTR) **Ag 56**

Healy, J. F. *(author)* Mining and Metallurgy in the Greek and Roman World (CB) **Je 114**

Healy, S. P. Torsional Vibrations of a Vehicle Drive Line (77-DET-24) (A) **Ja 110**

Heard, T. C. The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) (A) **Ag 113**

Heart Pacemakers

Long-Life Lithium Pacemaker (IF) **F 63**

Heart Rhythm

Physical vs. Psychological Stress Different Heart Rhythm (BTR) **N 64**

Heat

The Closed-Cycle Turbine—Present and Future Prospectives for Fossil and Nuclear Heat Sources (78-GT-102) (A) **Ag 108**

Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) (A) **Je 106**

U.S. Army Recycles Heat-and Dollars (BTR) **Ja 59**

Heat Affected Zones

Flaw Tolerance Evaluation of Heat Affected Zones (78-Mat-14) (A) **O 100**

Heat Conduction

Application of the Finite Element Method to the Inverse Heat Conduction Problems (77-WA/TM-4) (A) **My 98**

Heat Conduction Experiments in Rarefied Gases Confined Between Two Concentric Cylinders (78-HT-34) (A) **O 96**

An Iterative Approach to the Solution of Inverse Heat Conduction Problems (77-WA/TM-2) (A) **My 95**

PIPESD/HEAT: A Transient Thermal Analyzer Evaluating Class 1 Piping Components According to Section III of the ASME Code (78-PVP-80) (A) **N 121**

A Two-Dimensional Numerical Solution to Freezing/Melting in Cylindrical Coordinates (77-WA/HT-11) (A) **Ap 102**

Heat-Conduction Transients

The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transients (77-WA/HT-14) (A) **Ap 103**

Heat Conversion

SHE Power (BTR) **D 39**

Heat and Design Temperatures

Flow of Friction Heat and Design Temperatures at Sliding Contacts (77-DET-113) (A) **F 125**

Heat Energy

Rear Surface Noncontact Measurements of Laser Target Temperatures (78-HT-58) (A) **O 98**

Heat Engines

Low-Grade Thermal Energy-Conversion Joule Effect Heat Engines (78-ENAs-7) (A) **N 110**

Heat Exchanger Tube Arrays

Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) (A) **F 122**

Heat Exchanger Tubes

Crossflow-Induced Vibration of a Row of Circular Cylinders in Water (77-JPGC-NE-4) (A) **Mr 90**

The Elastic-Plastic Behavior of a Tube During Expansion (78-PVP-112) (A) **N 125**

Fretting Wear of Heat Exchanger Tubes Part I: Experiments (78-JPGC-NE-8) (A) **D 84**; Part II: Models (78-JPGC-NE-9) (A) **D 84**

Heat Exchangers

Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) (A) **Mr 91**

An Analytical Method for Fixed Tubesheet Heat Exchangers and Its Experimental Verification (78-PVP-77) (A) **N 120**

Ceramic Heat Exchangers May Save Petroleum (BTR) **F 59**

Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**

Compact Metallic and Ceramic Recuperators for Gas Turbines (78-GT-62) (A) **Jl 95**

Core Auxiliary Heat Exchanger Design for HTGR (78-NE-9) (A) **N 114**

Dynamic Characteristics of Double-Pipe Heat Exchangers with Double Phase Change (77-WA/HT-26) (A) **Ap 104**

The Effect of Nonuniform Fluid Flow Distribution on Thermal Performance of Crossflow Heat Exchanger (77-WA/HT-3) (A) **Ap 101**

Experimental Studies of Tube Fretting in Steam Generators and Heat Exchangers (78-PVP-22) (A) **O 103**

Flow Model Test Development of CRBRP Intermediate Heat Exchanger (77-JPGC-NE-10) (A) **Mr 90**

Fluid Forces in Real Heat Exchanger Tube Vibrations (77-DET-146) (A) **F 128**

Geothermal Reservoir Development (BTR) **Ja 55**

Heat Pipe Heat Exchangers for Solar Homes (77-WA/Sol-7) (A) **My 97**

A High-Effectiveness Regenerator Design Concept (78-GT-78) (A) **Ag 105**

Intermediate Heat Exchanger Development for the Clinch River Breeder Reactor Plant (77-WA/NE-10) (A) **Je 101**

Performance and Cost Evaluation for a Thermionic Topping Power Plant (77-WA/Ener-7) (A) **My 94**

Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**

Potted at the Power Plant (BTR) **Ap 55**

Predicting Sonic Vibration in Cross Flow Heat Exchangers—Experience and Model Testing (77-WA/DE-28) (A) **Mr 96**

The Reversed Brayton Cycle Heat Pump—A Natural Open Cycle for HVAC (78-GT-60) (A) **Jl 95**

Rosy Predictions for Heat Exchangers (ES) **N 20**

Sealing Forces for Leak-Tight Operation of a Self-Energized Pressure Vessel Closure (78-PVP-16) (A) **O 103**

Solar-Power Mountain Concept (BTR) **Ap 49**

Structural Design Optimization of Once-Through Type Heat Exchangers (77-JPGC-NE-3) (A) **Mr 89**

Study of Bolted Joint Integrity and Inter-Tube Pass Leakage in U-Tube Heat Exchangers—Part I: Analysis (77-WA/NE-6) (A) **Je 101**; Part II: Applications (77-WA/NE-7) (A) **Je 100**

A Study of Chemical Reactivity in Ceramic Heat Exchangers (78-GT-118) (A) **Ag 110**

Thermal Energy Storage Heat Exchanger Design (78-ENAs-30) (A) **D 86**

Two-Phase Flow on the Shell-Side of a Segmentally Baffled Shell-and-Tube Heat Exchanger (77-WA/HT-22) (A) **Ap 103**

Vibration of a Heat Exchanger Tube/Support Impact (77-JPGC-NE-5) (A) **Mr 90**

Vibro-Impact Responses of a Tube with Tube-Baffle Interaction (78-PVP-20) (A) **O 103**

Heat Extraction

Geothermal Energy: Heat Extraction From Hot Dry Rock Masses (77-Pet-41) (A) **Ja 102**

Heat Flow

Effect of Stabilizing Thermal Gradients on Natural Convection in Rectangular Enclosures (78-HT-42) (A) **O 97**

Heat Flux

Analysis of Mixed Convection About a Sphere with Uniform Surface Heat Flux (77-WA/HT-1) (A) **Ap 101**

Critical Steady-State Heat Fluxes Causing Melting or Evaporation of the Anode in a High Intensity Arc (78-HT-10) (A) **O 93**

An Evaporating Ethanol Meniscus: Part 1—Experimental Studies (78-HT-29) (A) **O 95**

Feasibility Study of On-Site Flame Hardening of Rail (78-RT-8) (A) **O 91**

The Longitudinal Water Boundary Layer Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**

Periodic Temperature of a Finite Wall Subjected to Periodic Heat Flux and Exposed to a Fluid with Periodic Temperature Variation (77-WA/Sol-6) (A) **My 97**

On Prediction and Unified Correlation for Decay of Vertical Buoyant Jets (78-HT-21) (A) **O 94**

Radiative Transfer in Hartmann MHD Flow (78-HT-18) (A) **O 94**

Heat Flux Conditions

Recent Advances in Evaluating Critical Heat Flux Conditions in LMFBR Steam Generators (77-WA/NE-11) (A) **Je 101**

Heat Generation

Lubrication of High-Speed Large Bore Tapered-Roller Bearings (77-Lub-13) (A) **F 133**

Heat Loss

Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) (A) **Ap 98**

Heat Pipe

Flat-Plate Heat Pipe (BTR) **O 51**

Liquid Metal Heat Pipe Performance in the Presence of a Transverse Magnetic Field (78-ENAs-20) (A) **N 112**

Heat Pipe Heat Exchangers

Cost-Effectiveness Study of Heat Pipe Heat Exchangers (77-WA/HT-5) (A) **Ap 101**

Heat Pipe Heat Exchangers for Solar Homes (77-WA/Sol-7) (A) **My 97**

Heat Pipe Mirrors

Heat Pipe Mirrors for High Power Lasers (78-HT-60) (A) **O 98**

Heat Pipe Radiator

Fabrication and Test of a 70 K Heat Pipe Radiator (78-ENAs-16) (A) **N 111**

Heat Propagation

Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) (A) **Ap 101**

Heat Pumps

Energy-Saving Heat Pump (ES) **S 20**

Gas Motor-Heat Pump (IF) **S 56**

Heat Pumps (C) **Je 50**

The Reversed Brayton Cycle Heat Pump—A Natural Open Cycle for HVAC Applications (78-GT-60) (A) **Jl 95**

Taking Advantage of the Beast (C) **Mr 47**

A Thermoelectric Integrated Membrane Evaporation System (78-ENAs-19) (A) **N 112**

Too Little Too Late? (C) **N 56**

Waste Heat Recycling System Replaces Gas Boiler (BTR) **N 67**

Heat Recovery Boiler

Design Considerations for Future Heat Recovery Boilers Aboard Naval Vessels (78-GT-162) (A) **Ag 105**

Grid Connected Electrical-Thermal (Cogeneration) Energy System for University of California, Davis, California (78-GT-134) (A) **Ag 112**

Heat-Recovery System

The Gas Turbine Waste Heat Recovery System and the U.S. Navy (78-GT-170) (A) **Ag 116**

A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) (A) **My 95**

Heat Source

Buoyancy Induced Convection Flow in Porous Media with Heat Source (78-HT-57) (A) **O 98**

Structure of a Turbulent Thermal Plume Rising Along an Isothermal Wall (78-HT-24) (A) **O 94**

Heat Source Arrangement

Experiments on the Role of Natural Convection and Heat Source Arrangement in the Melting of a Solid (78-HT-47) (A) **O 97**

Heat Storage

Stratified Versus Well-Mixed Sensible Heat Storage in a Solar Space Heating Application (78-HT-49) (A) **O 98**

Heat-Storage Materials

"Rolling Cylinder" Heat Storage Device (BTR) **Mr 55**

Heat Stress

Physiological Requirements for Design of Environmental Control Systems: Control of Heat Stress in High-Performance Aircraft (78-ENAs-22) (A) **N 113**

Heat Transfer

Advances in Frost Heave Prediction and Mitigation Methods for Pipeline Application (77-WA/HT-19) (A) **Ap 103**

Analysis of Advanced Compressed Air Energy Storage Concepts (78-HT-53) (A) **O 97**

Analysis of Mixed Convection About a Sphere with Uniform Surface Heat Flux (77-WA/HT-1) (A) **Ap 101**

An Analysis of Nonsimilar Boundary Layer Containing Liquid-Droplets Over a Heated Circular Cylinder (78-HT-20) (A) **O 94**

Analysis of Transient Heat Transfer in Porous Solids with Application Toward Phase Separation Processes (77-WA/HT-13) (A) **Ap 102**

An Application of the Substructuring Method to Heat Transfer (77-PVP-32) (A) **Ja 108**

Approximate Analysis of Heat Transfer from the Surface of a Wet Finned Heat Exchanger (78-HT-26) (A) **O 94**

Approximate Thawing of Permafrost Beneath a Buried Pipe (77-WA/HT-18) (A) **Ap 103**

Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation (77-WA/HT-45) (A) **My 100**

Buoyancy Induced Convection Flow in Porous Media with Heat Source (78-HT-57) (A) **O 98**

Calculation of Turbulent Boundary Layers with Tangential Slot Injection (77-WA/HT-29) (A) **Ap 104**

Canada Hosts International Heat Transfer Conference (NR) **My 69**

Comparison of Analytical Model with Approximate Models for Total Band Absorption and its Derivative (78-HT-15) (A) **O 93**

Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) (A) **O 94**

Convective Heat Transfer in Porous Media (78-HT-45) (A) **O 96**

Cost-Effectiveness Study of Heat Pipe Heat Exchangers (77-WA/HT-5) (A) **Ap 101**

Critical Review of Correlations for Predicting Two-Phase Flow Pressure Drop Across Tube Banks (77-WA/HT-23) (A) **Ap 104**

Critical Steady-State Heat Fluxes Causing Melting or Evaporation of the Anode in a High Intensity Arc (78-HT-10) (A) **O 93**

The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transients (77-WA/HT-14) (A) **Ap 103**

Decay of the Argon Plasma Jet Surrounded by Ar, He, N_2, and H_2 Gases (78-HT-12) (A) **O 93**

Design of a Combined Solar Collector/Absorber/Desorber for a Solid-Absorption Refrigerating System (78-HT-35) (A) **O 95**

On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) (A) **Ji 90**

Determination of Tissue Perfusion from In Vivo Thermal Conductivity Measurements (77-WA/HT-40) (A) **My 99**

The Development of a Large-Diameter Rotating Helium Rig (77-WA/HT-38) (A) **My 99**

The Development of a Rotating Liquid Helium Flow Circuit (77-WA/HT-37) (A) **My 99**

Developments in the Design of Shell-and-Tube Condensers (77-WA/HT-24) (A) **Ap 104**

Double-Diffusive Instability in a Density-Stratified Fluid Along a Heated Inclined Wall (78-HT-43) (A) **O 97**

Dynamic Characteristics of Double-Pipe Heat Exchangers with Double Phase Change (77-WA/HT-26) (A) **Ap 104**

The Effect of Nonuniform Fluid Flow Distribution on Thermal Performance of Crossflow Heat Exchanger (77-WA/HT-3) (A) **Ap 101**

Effect of Stabilizing Thermal Gradients on Natural Convection in Rectangular Enclosures (78-HT-42) (A) **O 97**

Effects of Joule Heating on Plasma Heat Transfer (78-HT-11) (A) **O 93**

Energy Equations for Convection in Saturated Porous Media (78-HT-54) (A) **O 97**

Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**

An Evaporating Ethanol Meniscus: Part 1—Experimental Studies (78-HT-29) (A) **O 95**

Evaporative Heat Transfer and Pressure Drop Performance of Internally-Finned Tubes with Refrigerant 22 (77-WA/HT-25) (A) **Ap 104**

Experimental Evaluation and Analysis of Thermistor Probes for Recording Clinical In Vivo Temperatures (77-WA/HT-41) (A) **My 100**

Experimental Evaluation of Duplex Tube Heat Transfer Characteristics Stimulating Steam Generator External Heating (77-JPGC-NE-9) (A) **Mr 90**

Experimental Study of Buoyant Wakes in Horizontal Flows (77-WA/HT-31) (A) **Ap 104**

Experimental Study of Evaporation and Breakdown of Thin Liquid Films Driven by Shear Stresses (77-WA/HT-7) (A) **Ap 102**

Experiments on the Role of Natural Convection and Heat Source Arrangement in the Melting of a Solid (78-HT-47) (A) **O 97**

Extended Mixing-Length Hypothesis Application to Transpired or Roughwall Compressible Boundary Layers (78-HT-22) (A) **O 94**

Finite Amplitude Benard Convection of Purely Radiating Fluids (78-HT-40) (A) **O 96**

Finite Amplitude Instability and Penetrative Convection in a Rotating Fluid (78-HT-39) (A) **O 96**

Flow in a Toroidal Thermosyphon with Angular Displacement of Heated and Cooled Sections (78-HT-44) (A) **O 97**

Gas Turbine Combustor Cooling by Augmented Backside Convection (78-GT-33) (A) **Ji 90**

Heat Conduction Experiments in Rarefied Gases Confined Between Two Concentric Cylinders (78-HT-34) (A) **O 96**

Heat Pipe Mirrors for High Power Lasers (78-HT-60) (A) **O 96**

Heat Transfer from Aluminum to HE II—Application to Superconductive Magnetic Energy Storage (78-HT-51) (A) **O 97**

Heat Transfer in the Anode Region of High Intensity Arcs (78-HT-9) (A) **O 93**

Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) (A) **Ag 110**

Heat Transfer From Axisymmetric Sources at the Surface of a Rotating Disk (78-GT-141) (A) **Ag 114**

Heat Transfer Distribution on Annular Fins (78-HT-30) (A) **O 96**

Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (77-WA/HT-4) (A) **Ap 101**

Heat Transfer in Lead-Acid Batteries (78-HT-52) (A) **O 97**

Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along Vertical Isothermal Wall (77-WA/HT-30) (A) **Ap 104**

Heat Transfer in Multiply Connected Regions (77-WA/HT-15) (A) **Ap 103**

Heat Transfer and Onset of Convection in a Melted Water Layer (78-HT-41) (A) **O 97**

Heat Transfer in Packed Beds at Low Reynolds Number (78-HT-46) (A) **O 97**

Heat Transfer in a Pipe Rotating Around a Perpendicular Axis (77-WA/HT-39) (A) **My 99**

Heated Three-Dimensional Turbulent Jets (77-WA/HT-27) (A) **Ap 104**

A Helium Cooling System for Large Superconducting A.C. Generators (77-WA/HT-36) (A) **Ap 105**

Interacting Turbulent Boundary Layer Over a Wavy Wall (77-WA/HT-28) (A) **Ap 104**

The Internally Insulated Liquid Natural Gas Pipeline for Arctic Gas Recovery (77-WA/HT-17) (A) **Ap 103**

Investigation of Heat Transfer Between an Electric Arc and a Turbulent Gas Flow in a Channel (78-HT-8) (A) **O 92**

Jet Cooling at the Rim of a Rotating Disk (78-GT-25) (A) **Ji 89**

Kinetics of Thermal Injury of Cell Populations Exposed to Supraphysiological Temperatures (77-WA/HT-44) (A) **My 100**

Laminar, Transitional, and/or Turbulent Three-Dimensional Boundary Layers over Arbitrary Blunt-Nosed Bodies Including Surface Curvature Effects (78-HT-23) (A) **O 94**

Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) (A) **Ap 101**

Longitudinal Vortices in a Horizontal Boundary Layer in Water Including the Effects of the Density Maximum at 4°C (78-HT-25) (A) **O 94**

The Longitudinal Water Boundary Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**

MHD Heat Transfer Problems - An Overview **Mr 32**

Measurement of Heat-Transfer Rate to a Gas Turbine Stator (78-GT-119) (A) **Ag 110**

Measurements of Temperature Distributions at Electrosurgical Dispersive Electrode Sites (77-WA/HT-47) (A) **My 100**

Model for Radiation Diagnostics in Turbulent Arcs (78-HT-13) (A) **O 93**

Natural Convection Heat Transfer in Beds of Inductively Heated Particles (77-WA/HT-2) (A) **Ap 101**

Natural Convection Turbulent Boundary Layers Next to Heated Vertical Surfaces (77-WA/HT-32) (A) **Ap 105**

Natural Convection from a Vertical Isothermal Surface Imbedded in a Saturated Porous Medium (78-HT-55) (A) **O 97**

A New Light-Weight Warm-Air Blower for Rapidly Pre-Heating Cold-Soaked Equipment (77-WA/HT-20) (A) **Ap 103**

A Numerical Study of the Surface Thawing of Coal Cars (77-WA/HT-33) (A) **Ap 105**

Optical Design and Performance of an Inverted, Segmented Mirror Solar Concentrator (78-HT-32) (A) **O 96**

Optical Property Measurements for Suspensions of Unicellular Algae (78-HT-14) (A) **O 93**

A Passive Technique for Enhancing Thermal Stratification in Liquid Storage Tanks (78-HT-50) (A) **O 97**

Performance of Rotary Bed Silica Gel Solid Desiccant Dryers (78-HT-36) (A) **O 95**

Perturbation Solutions to Phase Change Problem Subject to Convection and Radiation (77-WA/HT-16) (A) **Ap 102**

Potential Improvement of Solar Pond Efficiency by Downward Convection (77-WA/HT-6) (A) **Ap 102**

On Prediction and Unified Correlation for Decay of Vertical Buoyant Jets (78-HT-21) (A) **O 94**

Profile Loss Characteristics and Heat Transfer of Full Coverage Film-Cooled Blading (78-GT-98) (A) **Ag 108**

A Pulsed Homopolar Machine with Superconducting Field Coils (77-WA/HT-35) (A) **My 99**

Radiant Exchange for a Fin and Tube Solar Collector (78-HT-33) (A) **O 96**

Radiative Heat Transmission from Nonluminous Gases. Computational Study of the Emissivities of Carbon Dioxide (78-HT-16) (A) **O 94**

Radiative Transfer in Hartmann MHD Flow (78-HT-18) (A) **O 94**

Rear Surface Noncontact Measurements of Laser Target Temperatures (78-HT-58) (A) **O 98**

Recent Advances in Drop-wise Condensation Theory (77-WA/HT-21) (A) **Ap 103**

Response of a Finite Thin Cylindrical Shell of Graphite Materials to a Thermal Shock (77-WA/HT-9) (A) **Ap 102**

A Simple Method for Measuring and Monitoring Thermal Properties in Tissues (77-WA/HT-42) (A) **My 100**

Solar Ponds (BTR) **Ja 52**

Spectral Analogy Between Temperature and Velocity Fluctuations in Various Turbulent Flows (78-HT-2) (A) **O 92**

Steady Pressure Gradient Assisted Plane Couette Flow with Temperature Dependent Viscosity (78-HT-28) (A) **O 95**

Stratified Versus Well-Mixed Sensible Heat Storage in a Solar Space Heating Application (78-HT-49) (A) **O 98**

The Structure of a Boundary Layer on a Rough Wall with Blowing and Heat Transfer (78-HT-3) (A) **O 92**

Structure of a Turbulent Thermal Plume Rising Along an Isothermal Wall (78-HT-24) (A) **O 94**

Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) (A) **O 96**

A Technique for the Measurement of Burn Induced Leakage of Macromolecules in Living Tissue (77-WA/HT-46)

(A) **My 100**
Thermal-Acoustical Phenomena in Pulsed High-Energy Lasers (78-HT-61) (A) **O 98**
Thermal Design Criteria for Solar Hot Water Systems in Tropical Climates (78-HT-37) (A) **O 96**
Thermal Development of Flow in the Entrance Region of a Channel with Periodic Boundary Conditions (78-HT-27) (A) **O 95**
Thermal Performance Verification of Thermal Vertical Support Membranes for the Trans-Alaska Pipeline (77-WA/HT-34) (A) **Ap 105**
Thermal Response of Slabs Subjected to Nonsymmetric Convective Heat Transfer (78-DE-8) (A) **S 72**
Thermal Stress Effects and Surface Cracking Associated with Laser Use of Human Teeth (77-WA/HT-43) (A) **My 100**
Thermionic Energy Conversion Topping System (77-WA/Ener-6) (A) **My 94**
Three-Dimensional Natural Convection in a Confined Porous Medium Heated from Below (78-HT-56) (A) **O 98**
Transient Conduction in the Space Surrounding a Ring of Holes (77-WA/HT-12) (A) **Ap 102**
Transient Heat and Mass Transfer in Soils (78-HT-31) (A) **O 95**
Triple-Correlations Closure Models in an Asymmetric Heated Plane-Jet with Negative Production (78-HT-1) (A) **O 92**
Tubular Gas Turbine Recuperators (77-WA/HT-8) (A) **Ap 102**
Turbulence Scales in a Pipe Flow with a Slightly Heated Wall (78-HT-4) (A) **O 92**
Turbulent Natural Convection in a Horizontal Fluid Layer with Time Dependent Volumetric Energy Sources (78-HT-6) (A) **O 92**
A Two-Dimensional Numerical Solution to Freezing/Melting in Cylindrical Coordinates (77-WA/HT-11) (A) **Ap 102**
Two-Phase Flow on the Shell-Side of a Segmentally Baffled Shell-and-Tube Heat Exchanger (77-WA/HT-22) (A) **Ap 103**

Heat Transfer Augmentation
Heat Transfer Augmentation Using a Corona Discharge Air Jet (78-ENAs-8) (A) **N 111**

Heat Transmission
Radiative Heat Transmission from Nonluminous Gases. Computational Study of the Emissivities of Carbon Dioxide (78-HT-16) (A) **O 94**

Heat Treatment
Factors Affecting The Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) (A) **O 98**
Heat Treatment, Structure, and Properties of Standard and Modified Vasco X-2 Carburizing Grade Gear Steels (77-DET-151) (A) **F 129**

Heat Waves
Topical Heat Waves (BTR) **Je 61**

Heated Circular Cylinder
An Analysis of Nonsimilar Boundary Layer Containing Liquid-Droplets Over a Heated Circular Cylinder (78-HT-20) (A) **O 94**

Heated Cylindrical Shells
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) (A) **O 101**

Heated Fluid Layer
Turbulent Natural Convection in a Horizontal Fluid Layer with Time Dependent Volumetric Energy Sources (78-HT-6) (A) **O 92**

Heated Inclined Wall
Double-Diffusive Instability in a Density-Stratified Fluid Along a Heated Inclined Wall (78-HT-43) (A) **O 97**

Heated Jets
Heated Three-Dimensional Turbulent Jets (77-WA/HT-27) (A) **Ap 104**

Heated Sections
Flow in a Toroidal Thermosyphon with Angular Displacement of Heated and Cooled Sections (78-HT-44) (A) **O 97**

Heated Vertical Surfaces
Natural Convection Turbulent Boundary Layers Next to Heated Vertical Surfaces (77-WA/HT-32) (A) **Ap 105**

Heated Wall
Turbulence Scales in a Pipe Flow with a Slightly Heated Wall (78-HT-4) (A) **O 92**

Heated Windshields
The Design and Development of Heated, Impact Resistant Windshields for Locomotives (78-RT-5) (A) **O 90**

Heater Performance
A Method for Predicting Fired Heater Performance (77-Pet-10) (A) **Ja 100**

Heating
An Approach to Solving Controls Compartment Heating Problems on Air-Launched Missiles (78-ENAs-12) (A) **N 111**
Effects of Joule Heating on Plasma Heat Transfer (78-HT-11) (A) **O 93**
An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Jl 94**
Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/Prod-22) (A) **Je 105**
Inexpensive High-Temperature Solar Collector (BTR) **Mr 45**
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) (A) **Jl 89**
Steam Flooding (BTR) **Ag 57**
A Thermodynamic Study of Heating With Geothermal Energy (77-WA/Ener-1) (A) **My 93**
Three-Dimensional Natural Convection in a Confined Porous Medium Heated from Below (78-HT-56) (A) **O 98**
Transient Temperature Measurement in Moving Fluids (77-WA/TM-3) (A) **My 96**

Heating Measurement
A Simple Method for Measuring and Monitoring Thermal Properties in Tissues (77-WA/HT-42) (A) **My 100**

Heating Methods
Fusion Energy (77-WA/NE-1) (A) **Je 100**

Heating Systems
A Biphysical Model for Evaluating Auxiliary Heating and Cooling Systems (78-ENAs-33) (A) **N 113**
Cogeneration Power Plants Serve District Heating Systems **Jl 24**
Design of High-Efficiency Flat Plate Solar Collectors for Space and Water Heating (78-DE-7) (A) **S 73**
New Stainless Steel Solar Collector (IF) **Je 64**
Simplicity: Key to Solar Success (BTR) **N 57**
Solar Building Breakthrough at MIT (ES) **My 21**
Solar Economics (C) **My 52**
Solar Mega-Plant (BTR) **S 52**
Solar Simulator Helping to Set Standards (BTR) **O 48**
Thermosyphon Analysis of a Thermic Diode Solar Heating System (77-WA/Sol-9) (A) **My 98**

Heating Units
Heat and Air Conditioning from Factory Trash (BTR) **Ja 58**

Heckmann, S. R. Thermoplastic Effects in Frictionally Heated Line Contact of Slab Like Bodies (77-Lub-21) (A) **Mr 96**

Hedron Engine
Novel Auto Engine (BTR) **Ap 54**

Heer, J. E. *(author)* Environment Assessments and Statements (CB) **F 135**

Hefner, J. N. Calculation of Turbulent Boundary Layers with Tangential Slot Injection (77-WA/HT-29) (A) **Ap 104**

Heidebrecht, A. C. Seismic Qualification Testing for Shutoff Mechanism for CANDU Reactor (78-PVP-41) (A) **N 117**

Heimbold, R. L. Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**

Helfinstein, R. A. Effects of Variation in Velocity Profiles on a Simulated Submarine Pipeline (77-WA/Oce-4) (A) **Ap 92**

Helical Gear Units
Optimal Synthesis of Double Reduction Helical Gear Units by Nonlinear Programming (77-DET-171) (A) **F 130**

Helical Gears
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) (A) **Ja 114**

Helicopter Gearbox
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) (A) **F 124**

Helicopter Powerplants
Simulation of Helicopter Powerplant Performance (78-GT-51) (A) **Jl 93**

Helicopters
Experimental Investigation of Simulated Helicopter Fuel Cell Impact Phenomenon (78-DET-79) (A) **D 95**

Helium
Decay of the Argon Plasma Jet Surrounded by Ar, He, N_2 and H_2 Gases (78-HT-12) (A) **O 93**
The Development of a Rotating Liquid Helium Flow Circuit (77-WA/HT-37) (A) **My 99**
Helium Blistering in Metals (78-Mat-5) (A) **O 99**
Strategic Reserve of Helium Proposed (BTR) **My 58**

Helium Cooling System
A Helium Cooling System for Large Superconducting A.C. Generators (77-WA/HT-36) (A) **Ap 105**

Helium Direct Cycle Power Plants
An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Jl 94**

Helium Rig
The Development of a Large-Diameter Rotating Helium Rig (77-WA/HT-38) (A) **My 99**

Helium Turbine
Optimization Analysis of a CCGT Nuclear Power Plant with Application to the HHT 3000 MWth Commercial Plant (HHT-Project) (78-GT-16) (A) **Jl 88**

Helium Turbine Plant
The Closed-Cycle Turbine—Present and Future Prospectives for Fossil and Nuclear Heat Sources (78-GT-102) (A) **Ag 106**

Hemodynamics
Engineering Hemodynamics: Application to Cardiac Assist Devices (CB) **My 106**

Hempel, H. Profile Loss Characteristics and Heat Transfer of Full Coverage Film-Cooled Blading (78-GT-98) (A) **Ag 106**

Hemsworth, M. C. Making Turbofan Engines More Energy Efficient (78-GT-198) (A) **S 76**

Henderson, J. A. Improved LNG Semi Trailer Design (77-Pet-57) (A) **Ja 104**

Hendrickson, R. R. Seals for Geothermal Roller Drill Bits (77-Pet-53) (A) **Ja 103**

Hermann, W. The Effect of Material Constitutive Models on Stress Wave Propagation Calculations (77-WA/Mat-8) (A) **Je 109**

Herrmann, G. Effect of Axial Force on Dynamic Fracture of a Beam or Plate in Pure Bending (77-WA/APM-22) (A) **Jl 98**; Response of Collecting Plates in Electrostatic Precipitators Due to Shear Rapping (77-DET-98) (A) **F 124**

Hersh, S. The Effects of Smoke Suppressant and Corrosion Inhibiting Fuel Additives on the Particulate and Gaseous Emissions from a Utility Gas Turbine (78-GT-64) (A) **Jl 95**

Heuristics
Optimum Synthesis of Mechanisms Using Heuristics for Decomposition and Search (78-DET-5) (A) **D 88**

Hewett, T. A. Design of High-Efficiency Flat Plate Solar Collectors for Space and Water Heating (78-DE-7) (A) **S 73**

Hexagonal Ducts
Fuel Pin Bundle and Hexagonal Duct Mechanical Interaction (78-PVP-48) (A) **N 117**

Hibner, D. H. Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) (A) **Ja 110**; Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces by Offset Circular Whirl Orbits (77-DET-25) (A) **Ja 109**

Hickman, R. H. Can Coal-Oil Mixtures Make It as Industrial Fuels? **Mr 24**

Hickox, C. E. Tracking and Shadowing Models for Solar Collection Systems (77-WA/Sol-8) (A) **My 97**

High-Carbon Steels
Preventing Microcracking in High-Carbon Steels (BTR) **Je 58**

High Efficiency Compressors
Development and Closed-Loop Testing of High Efficiency Compressors for Use with a 7000-kW Gas Turbine (78-GT-189) (A) **Ag 117**

High Exciting Frequencies
Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) (A) **Ap 101**

High Intensity Arcs
Critical Steady-State Heat Fluxes Causing Melting or Evaporation of the Anode in a High Intensity Arc (78-HT-10) (A) **O 93**
Heat Transfer in the Anode Region of High Intensity Arcs (78-HT-9) (A) **O 93**

High-Power Lasers
Heat Pipe Mirrors for High Power Lasers (78-HT-60) (A) **O 98**

High Precision Gears
Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) (A) **F 131**
High Pressure Centrifugal Compressors
Vibrations in Very High Pressure Centrifugal Compressors (77-DET-15) (A) **Ja 108**
High-Pressure Component Failures
Three High-Pressure Component Failures (78-Mat-3) (A) **O 98**
High-Pressure Gears
Manufacturing Method of Large-Size Marine High-Pressure Gears (77-DET-35) (A) **Ja 110**
High-Pressure Mudpump Ends
Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Ends (77-Pet-42) (A) **Ja 101**
High-Pressure Services
Design, Manufacture and Safety Aspects of Forged Vessels for High-Pressure Services (78-PVP-72) (A) **N 120**
High Reliability Condenser Design
Verification of High Reliability Condenser Design (77-JPGC-Pwr-14) (A) **Mr 89**
High School Academies Program
High School Academies Program Singled Out by White House (EN) **N 81**
High-Speed Cylindrical Roller Bearing
The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearings (77-Lub-8) (A) **F 133**
High Speed Sliding Power Collector
Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) (A) **F 123**
High-Speed Tapered Roller Bearings
Lubrication of High-Speed Large Bore Tapered-Roller Bearings (77-Lub-13) (A) **F 133**
High-Speed Textile Spindles
One-Stage and Two-Stage Vibration Isolators as Applied to High-Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) (A) **F 124**
High-Sulfur Coal
Search for Clean Coal Power (BTR) **D 41**
High Temperature Bearing Steel
Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) (A) **Mr 87**
High-Temperature Gas Turbines
The Utilization of High-Temperature Gas Turbines in Integrated Coal-Derived Fuel Combined Cycles (77-WA/Ener-12) (A) **My 95**
High Temperature Turbines
The High Temperature Water Cooled Gas Turbine in Combined Cycle with Integrated Low Btu Gasification (77-JPGC-GT-7) (A) **Mr 93**
A Low-Risk Approach to the High-Temperature Turbine (77-WA/Ener-10) (A) **My 94**
High Velocity Water Jets
High Energy Water Jet Cutting Equations for Wood (77-WA/Prod-18) (A) **Je 104**
Hightree, M. D. *(recipient)* Sylvia W. Farney Scholarship **N 100**
Hill, D. C. Design of High-Efficiency Flat Plate Solar Collectors for Space and Water Heating (78-DE-7) (A) **S 73**
Hill, J. A. Laminar, Transitional, and/or Turbulent Three-Dimensional Boundary Layers over Arbitrary Blunt-Nosed Bodies Including Surface Curvature Effects (78-HT-23) (A) **O 94**
Hill, L. F. Testing of FFTF Fuel Handling Equipment (77-WA/NE-9) (A) **Je 101**
Hillberry, B. M. Design of a Load Simulator for the Dynamic Evaluation of Prosthetic Knee Joints (78-DET-59) (A) **D 94**
Hills, R. G. Heat Transfer in Multiply Connected Regions (77-WA/HT-15) (A) **Ap 103**
Hirata, T. Longitudinal Vortices in a Horizontal Boundary Layer in Water Including the Effects of the Density Maximum at 4°C (78-HT-25) (A) **O 94**
Hirokawa, S. A Study on Involute Worm Gearing on Non-Right Axial Angle (77-DET-16) (A) **Ja 110**
Hirota, A. Analytical Prediction of Three-Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) (A) **My 103**; A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) (A) **Je 104**
Hirsch, C. An Axial Compressor End-Wall Boundary Layer Calculation Method (78-GT-81) (A) **Ag 105**
Hirsch, Cg. The Three-Dimensional Flow and Blade Wake in an Axial Plane Downstream of an Axial Compressor Rotor (78-GT-66) (A) **Jl 95**
Hirsch, Ch. An Integrated Quasi-3D Finite Element Calculation Program for Turbomachinery Flows (78-GT-56) (A) **Jl 94**
Hirschfeld, F. The Century Two Convocation—A Report to the Membership **O 20**; The Expanding Industry Horizons for Fiber Optics **Ja 20**; For the Latest in Energy Storage, Try the Flywheel! **F 38**; Looking at the Energy Realities With Congressman Mike McCormack **My 22**; Management Success Story: . . . a nuts-and-bolts view **F 28**; Never Too Old For Another Gear Idea! **Mr 20**; The New Vistas in Bioengineering **Je 26**; The Resurrection of the Sterling Engine **O 38**; The Year Ahead . . . with President Lewis **Jl 18**
Hirt, M. Advanced Industrial Turbine Gear Calculation Methods (78-GT-174) (A) **S 74**
Hitomi, K. Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/Prod-32) (A) **Je 107**; Machine Loading and Product-Mix Analysis for Group Technology (77-WA/Prod-19) (A) **Je 105**
Hiura, H. Development of 25,000 kW Class Two-Shaft Gas Turbine (77-Pet-43) (A) **Ja 102**
Hoagland, R. G. Analysis of Crack Arrest in Reactor Pressure Vessels (78-Mat-16) (A) **O 100**
Hob Gashes
Effect of Number of Gashes in Hob on Accuracy of Generated Tooth Profile of Worm Gear (77-DET-55) (A) **Ja 112**
Hob Steel Gears
Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) (A) **F 122**
Hockley, B. S. Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) (A) **Ag 110**
Hodge, B. K. Extended Mixing-Length Hypothesis Application to Transpired or Roughwall Compressible Boundary Layers (78-HT-22) (A) **O 94**
Hodge, R. I. Pre-service and In-service Inspection-Research and Development in Support of the Canadian Nuclear Power Program (78-PVP-23) (A) **O 104**
Hodgetts, D. Torsional Vibrations of a Vehicle Drive Line (77-DET-24) (A) **Ja 110**
Hoffmann, R. Fluid-Structure Interaction Calculations for Cylinders Impacting a Water Pool (78-PVP-59) (A) **N 119**
Hogan, N. Cybernetic Considerations in the Use of Myoelectric Activity for Prosthesis Control (77-WA/Bio-10) (A) **Ap 98**
Holbrook, G. E. Evolution of The Turboprop for High Speed Air Transportation (78-GT-201) (A) **S 77**
Holbrook, G. J. Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **Jl 87**
Hole Surface
Transient Conduction in the Space Surrounding a Ring of Holes (77-WA/HT-12) (A) **Ap 102**
Holl, J. W. Elections to Fellow Grade **O 88**
Hollander, J. M. *(editor)* Annual Review of Energy (CB) **Ap 107**
Holloran, J. D. The Torsional Response of Compressor Shaft Systems During Synchronous Motor Startup. Part III—Abnormal Motor Conditions (77-Pet-56) (A) **Ja 104**
Hollow Disk Forging
Limit Analysis of Hollow Disk Forging Part 1: Upper Bound (77-WA/Prod-2) (A) **My 103**; Part 2: Lower Bound (77-WA/Prod-3) (A) **My 103**
Hollow Rolling Elements
Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) (A) **Mr 86**
Hollow Symmetrical Blades
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) (A) **Ja 114**
Hollworth, B. R. Feasibility Study of On-Site Flame Hardening of Rail (78-RT-8) (A) **O 91**; Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) (A) **Ag 110**
Holm, J. The Application of Turboexpanders for Energy Conservation (77-Pet-17) (A) **Ja 100**; Turboexpanders for Energy Conservation **S 34**
Holmes, A. G. The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) (A) **Ja 111**
Holmes, B. J. Alternative Energy System (C) **My 52**
Holmes, D. H. Recent Advances in Evaluating Critical Heat Flux Conditions in LMFBR Steam Generators (77-WA/NE-11) (A) **Je 101**
Holms, M. Military Engine Usage Monitoring Developments in the United Kingdom (78-GT-65) (A) **Jl 95**
Holocaust
The Holocaust and the Engineering Profession **O 75**
Holtz, M. On Thermal Expansion Induced Stresses in U-Bends of Shell- and Tube-Heat Exchangers (78-JPGC-NE-14) (A) **D 86**
Holum, J. R. *(author)* Topics and Terms in Environmental Problems (CB) **Ag 119**
Holyen, S. Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/Prod-22) (A) **Je 105**
Holz, P. P. Half-Bead Weld Repairs for In-Service Applications (78-PVP-10) (A) **O 102**
Holzapfel, I. Design and Development of a Low Emission Combustor for a Car Gas Turbine (78-GT-155) (A) **Ag 115**
Home Building Industry
Home Energy Auditors (ES) **Je 18**
Home Energy Conservation
Designing for Home Energy Conservation (EN) **Ag 76**
Homogeneous Plane Stress Flywheel
Optimum Design of the Homogeneous Plane-Stress Flywheel (77-DET-112) (A) **F 125**
Homogeneous Plates
A High-Order Theory of Plate Deformation—Part 1: Homogeneous Plates (77-WA/APM-23) (A) **Jl 98**
Homopolar Machine
A Pulsed Homopolar Machine with Superconducting Field Coils (77-WA/HT-35) (A) **My 99**
Honda, T. Decay of the Argon Plasma Jet Surrounded by Ar, He, N_2 and H_2 Gases (78-HT-12) (A) **O 93**
Hondius, H. Ten Years' Engineering Development in Gas Turbine Driven Natural Gas Compressor Stations (78-GT-74) (A) **Jl 96**
Hook, D. T. Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) (A) **Ja 113**
Hooked Needle
A New Hooked Needle Device for Forming Fiber Beards for Length and Strength Measurement (77-Tex-2) (A) **F 131**
Hop, K. W. *(recipient)* Sylvia W. Farny Scholarship **N 100**
Hope, P. M. A New Approach to the Design of Wet-Gas Pipelines (77-Pet-14) (A) **Ja 100**
Hore, P. S. Application of the Finite Element Method to the Inverse Heat Conduction Problems (77-WA/TM-4) (A) **My 96**
Horiuchi, A. A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) (A) **Ja 113**
Horizontal Boundary Layer
Longitudinal Vortices in a Horizontal Boundary Layer in Water Including the Effects of the Density Maximum at 4°C (78-HT-25) (A) **O 94**
Horizontal Cylinder
The Longitudinal Water Boundary Layer Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**
Horizontal Flows
Experimental Study of Buoyant Wakes in Horizontal Flows (77-WA/HT-31) (A) **Ap 104**
Horizontal Fluid Layer
Turbulent Natural Convection in a Horizontal Fluid Layer with Time Dependent Volumetric Energy Sources (78-HT-6) (A) **O 92**
Horizontal Plate Filter
The Horizontal Plate Filter as a Torsional Vibration System with Vibration Absorption (77-DET-86) (A) **F 123**
Hornbruch, F. W., Jr. *(author)* Raising Productivity: Ten Case Histories and Their Lessons (CB) **Mr 100**
Horne, R. N. Three-Dimensional Natural Convection in a Confined Porous Medium Heated from Below (78-HT-56) (A) **O 98**
Horner, G. C. The Riccati Transfer Matrix Method (77-DET-32) (A) **Ja 110**
Horner, M. W. Development of Water-Cooled Gas Turbine (78-GT-72) (A) **Jl 96**
Horton, T. E. Thermal-Acoustical Phenomena in Pulsed High-Energy Lasers (78-HT-61) (A) **O 98**
Horton, T. L. O. The Prospects for Lightweight Ship Propulsion Systems (78-GT-179) (A) **S 74**
Horvay, G. Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) (A) **Ap 101**

Hot Corrosion
Hot Corrosion of Gas Turbine Components (78-GT-82) (A) **Ag 106**
Hot Corrosion in Gas Turbines (77-WA/Fu-3) (A) **My 92**
Hot Dry Rock Masses
Geothermal Energy: Heat Extraction From Hot Dry Rock Masses (77-Pet-41) (A) **Ja 102**
Hot Pipes
Approximate Thawing of Permafrost Beneath a Buried Pipe (77-WA/HT-18) (A) **Ap 103**
Hot Pressing
Inexpensive Metal Recycling (BTR) **N 66**
Hot Water Systems
Thermal Design Criteria for Solar Hot Water Systems in Tropical Climates (78-HT-37) (A) **O 95**
Hot-Wire Data
The Structure of a Boundary Layer on a Rough Wall with Blowing and Heat Transfer (78-HT-3) (A) **O 92**
Hot-Wire Welding Process
The Merrick "Hot Piper" Automated Pipe Welding System (77-Pet-62) (A) **Ja 104**
Hottel, H. C. Radiative Heat Transmission from Nonluminous Gases. Computational Study of the Emissivities of Carbon Dioxide (78-HT-16) (A) **O 94**
Hottenroth, F. W. Low-Cost Test Procedure for Solar Collectors (77-WA/Sol-4) (A) **My 97**
Hotwells
Condensate Reheating and Separate Reheating Hotwells for Central Station Main Condensers (78-JPGC-Pwr-14) (A) **D 73**
Hough, G. P., Jr. *(author)* Creative Growth Games (CB) **F 134**
Hourglass Worm
Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) (A) **F 131**
Hourglass Worm Gearing
A Study of Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) (A) **Ja 113**
Houser, D. R. An Experimental and Theoretical Study of the Effect of Simulated Pitch Line Pitting on the Vibration of a Geared System (77-DET-123) (A) **F 126**
Housing
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) (A) **F 124**
Howell, A. R. A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) (A) **Ag 113**
Hsia, L. M. Multistage Geared Geneva Mechanism (78-DET-18) (A) **D 89**
Hsu, T-K A Simple Dynamic Model for Stimulating Draft-Gear Behavior in Rail-Car Impacts (78-RT-2) (A) **O 90**
Huang, C. L. D. Response of a Finite Thin Cylindrical Shell of Graphite Materials to a Thermal Shock (77-WA/HT-9) (A) **Ap 102**
Huang, P. N. S. Perturbation Solutions to Phase Change Problem Subject to Convection and Radiation (77-WA/HT-16) (A) **Ap 102**
Huang, R. C. Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) (A) **Ja 108**
Huckstep, F. L. Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) (A) **My 97**
Huffman, B. D. *(recipient)* Sylvia W. Farny Scholarship **N 101**
Huffman, F. N. Thermionic Energy Conversion Topping System (77-WA/Ener-6) (A) **My 94**
Huffstetler, W. J. Life Sciences Experiments in the First Spacelab Mission (78-ENAs-26) (A) **N 113**
Huggett, B. M. Prospects for the Gas Turbine in the U.K. Gas Transmission System (78-GT-52) (A) **Jl 94**
Hughes, D. A. Radiation Effects in Boiling Water Reactor Pressure Vessel Steels (78-Mat-11) (A) **O 99**
Hughes, W. F. Phase Change in Liquid Face Seals (77-Lub-12) (A) **Mr 85**
Hullender, D. Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) (A) **Je 103**
Hullinger, D. P. Power Plant Equipment Reliability (78-JPGC-Pwr-8) (A) **D 83**
Hultgren, B. Kinematics of Jaw Growth (77-WA/Bio-15) (A) **Ap 99**
Human Ankle Joint
Compliance of the Human Ankle Joint (77-WA/Bio-2) (A) **Mr 97**
Human Eye
Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation (77-WA/HT-45) (A) **My 100**
Human Face
Kinematics of Jaw Growth (77-WA/Bio-15) (A) **Ap 99**
Human Factors
Human Factors in Machine Design (78-DET-68) (A) **D 94**
Human Factors in Work, Design and Production. (Case Studies in Ergonomics Practice, Vol. 1) (CB) **Ja 116**
Human Gait
Determining Muscle Forces in the Leg During Normal Human Gait—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) (A) **Ap 98**
Human Heat Loss
Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) (A) **Ap 98**
Human Implant
Human Implant of Ceramic Tooth Root (BTR) **O 53**
Human Performance Reliability
Human Performance Reliability—Its Measurement and Impact on System Reliability (78-DE-17) (A) **S 74**
Human Physiology
The European Life Sciences Experiments on Board the First Spacelab Mission (78-ENAs-24) (A) **N 112**
Human System
Measurements of Temperature Distributions at Electrosurgical Dispersive Electrode Sites (77-WA/HT-47) (A) **My 100**
Human Teeth
Thermal Stress Effects and Surface Cracking Associated With Laser Use on Human Teeth (77-WA/Bio-3) (A) **Mr 97**; (77-WA/HT-43) (A) **My 100**
Humidity Effect
The Dependence of the CO_2 Removal Efficiency of LiOH on Humidity and Mesh Size (78-ENAs-5) (A) **N 110**
Hundal, M. S. Analysis of Performance of Pneumatic Absorbers (77-DET-1) (A) **Ja 108**
Hunger, G. A., Jr. Atomic Issues (Cont'd.) (C) **Ag 52**
Hunsicker, J. C. Development Testing of Leak Injection Devices for Use in Testing Sodium-Water Leak Detection Modules (77-JPGC-NE-7) (A) **Mr 90**; Investigations into the Sodium-Steam Surface Interaction on a Stagnant Pool (77-JPGC-NE-11) (A) **Mr 91**
Hunston, D. L. Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) (A) **Je 110**
Hunt, K. H. Algebraic Throchoids—Classification, Transformations, and Certain Properties (78-DET-57) (A) **D 93**; Degree of the Input-Output Equations of Certain Geared Five-Bar Mechanisms (78-DET-27) (A) **D 90**
Hunt, S. R. Animal Life Support Transporters for Shuttle/Spacelab (78-ENAs-10) (A) **N 112**
Hunter, S. C. Evaluation of Two Industrial Boilers with Combustion Modifications for Reduced Pollutant Emissions (77-WA/APC-1) (A) **My 101**
Hunting Stability
Hunting Stability of the Three-Axle Locomotive Truck (78-RT-6) (A) **O 91**
Huntington, R. A. Stress Analysis and Maximization of Energy Density for a Magnetically Suspended Flywheel (77-WA/DE-24) (A) **Mr 96**; Stress Redistribution for the Multiring Flywheel (77-WA/DE-26) (A) **Mr 96**
Hurd, W. L., Jr. Registration (C) **Ja 51**
Hurley, J. F. The Effects of Smoke Suppressant and Corrosion Inhibiting Fuel Additives on the Particulate and Gaseous Emissions from a Utility Gas Turbine (78-GT-64) (A) **Jl 95**
Hurry, M. F. Military Engine Usage Monitoring Developments in the United Kingdom (78-GT-65) (A) **Jl 95**
Hursen, T. F. New Vistas in Bioengineering (CO) **O 45**
Hutter, M. How to Design and Utilize Flexible Shafts in Products (78-DE-22) (A) **S 73**
Hwang, C. L. Design Considerations for Dry Ice Garments (78-ENAs-32) (A) **N 113**
Hwang, C. T. Advances in Frost Heave Prediction and Mitigation Methods for Pipeline Application (77-WA/HT-19) (A) **Ap 103**
Hwang, D. C. Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) (A) **O 94**
Hwang, I. T. Buoyancy Induced Convection Flow in Porous Media with Heat Source (78-HT-57) (A) **O 98**
Hwang, J. Y. Experimental Evaluation of Duplex Tube Heat Transfer Characteristics Stimulating Steam Generator External Heating (77-JPGC-NE-9) (A) **Mr 90**
Hybrid Car
Coming Next: the Hybrid Car (ES) **N 20**
Hybrid Combustion System
Demonstration of Ceramic Design Methodology for a Ceramic Combustor Liner (78-GT-137) (A) **Ag 113**
Hybrid Computer Programs
Simulation of Helicopter Powerplant Performance (78-GT-51) (A) **Jl 93**
Hybrid Concept
Hybrid Geothermal—Fossil Power Plants **D 28**
Hybrid Cycle
Analysis of Advanced Compressed Air Energy Storage Concepts (78-HT-53) (A) **O 97**
Hybrid Plant
A Combined System of Fuel Washing Involving Both Centrifuges and Electrostatic Separators—A Hybrid (78-GT-130) (A) **Ag 112**
Hybrid Power Plants
Hybrid Fossil-Geothermal Power Plants (77-WA/Ener-2) (A) **My 93**
Hybrid Profiling Mechanisms
Dynamic Accuracy of Hybrid Profiling Mechanisms in Cam Manufacturing (77-WA/DE-3) (A) **Mr 93**
Hybrid Transmissions
Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) (A) **Je 102**
Hybrid Vehicles
Electric Vehicles Spark Interest of 10,000 in Philadelphia (NR) **N 74**
Hybridization
Simplified Design with Graphite-Reinforced Plastics **Je 38**
Hydraulic Circuits
Noise Radiated from Hydraulic Circuits (78-DE-23) (A) **O 92**
Hydraulic Fluids
Analysis of Pneumatically Driven Double-Acting Reciprocating Pumps (78-DE-19) (A) **O 91**
Hydraulic Fracturing
On the Stimulation of Geothermal Reservoir by Downward Hydraulic Fracturing (77-Pet-81) (A) **Ja 107**
Hydraulic Jumps
Water Waves in a Nonhomogeneous Incompressible Fluid (77-WA/APM-27) (A) **Jl 99**
Hydraulic Servomechanisms
A New Class of Spool Valves with Built-In Dampers (78-DE-6) (A) **S 73**
Hydraulic Servovalve
The Stability of the Three-Way Underlapped Hydraulic Spool Servovalve (77-WA/Fcs-9) (A) **Ap 98**
Hydraulic System
Shuttle Orbiter Water Spray Boiler (78-ENAs-17) (A) **N 112**
Hydraulics
Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) (A) **Ja 106**
Hydro Power
Pre-engineered Tube Turbine for Hydro Power (BTR) **F 56**
Hydrodesulfurization
Microbial Desulfurization of Coal (BTR) **D 46**
Hydrodynamic Excitation
Acoustic Radiation from a Venturi Type Flowmeter Due to Hydrodynamic Excitation (LWBR Development Program) (77-DET-165) (A) **F 130**
Hydrodynamic Forces
Dynamics of a Neutrally Bouyant Inflatable Oceanographic Platform (77-DET-139) (A) **F 128**
Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) (A) **Je 107**
Hydrodynamic Lubrication
An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) (A) **Mr 86**
Design Considerations in Mechanical Face Seals for Improved Performance—2 (77-WA/Lub-4) (A) **Jl 96**
Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) (A) **Mr 86**
Hydrodynamics
Dynamic Characteristics of Double-Pipe Heat Exchangers with Double Phase Change (77-WA/HT-26) (A) **Ap 104**
Explosion Welding **My 28**
Flow in the Inlet Plenum Feature Model of the Clinch River Breeder Reactor (77-Wa/FE-19) (A) **Ap 96**
Hydrodynamic/Structural Response
Comparison of ICEPEL Predictions with Single Elbow Flexible Piping System Experiment (78-PVP-55) (A) **N 118**

Hydroelectric Power Station
Where Credit is Due (C) **Ag 50**
Hydroelectric Project
Jebba Hydroelectric Project (IF) **My 65**
Hydrofoils
JETFOIL In-Service Exoerience (78-GT-91) (A) **Ag 107**
Hydrofracture Mapping Experiment
Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) (A) **Ja 103**
Hydrogen
Decay of the Argon Plasma Jet Surrounded by Ar, He N_2 and H_2 Gases (78-HT-12) (A) **O 93**
Geothermal Hydrogen (BTR) **Ja 62**
Limitations on Water Production in the Iron-Catalyzed Bosch Process (78-ENAs-4) (A) **N 110**
Hydrogen-Fueled Home
Alternative Energy System (C) **My 53**
Hydrogen Generation
On-Site Generation of Hydrogen for Generator Cooling (78-GT-196) (A) **S 76**
Hydrogen Isotopes
Materials for Fusion Reactors (ES) **Je 19**
Hydrogen Power
H-Power in Provo (BTR) **F 58**
Hydrogen Production
Hydrogen Production by Electrolysis (IF) **D 48**
Toward a Hydrogen Economy (BTR) **Mr 49**
Hydrogen Sulfide
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) (A) **My 102**
Hydromechanical Impact Breaker
Design and Dynamic Performance of a Hydromechanical Impact Breaker (77-WA/Fics-3) (A) **Ap 97**
Hydropower Resources
Assessing Small Hydropower Resources in the U.S. (EN) **Jl 62**
Hydrostatic Clutch
Dynamic Analysis of a Hydrostatic Clutch (77-DET-153) (A) **F 129**
Hydrostatic Loading
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) (A) **Ap 92**
Hydrostatic Pressure
Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) (A) **Mr 87**
Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) (A) **Ap 92**
Hydrothermal Cements
Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) (A) **Ja 101**
Hyman, B. The Evolution of Conservation as a Key Element of National Energy Policy (77-WA/TS-3) (A) **My 98**
Hyperbaric Breathing Simulators
Hyperbaric Breathing Simulators for Use in the Evaluation of Underwater and Hyperbaric Breathing Apparatus (77-WA/Oce-6) (A) **Ap 93**
Hyperbaric Chambers
Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) (A) **Ap 98**
Hypoelastic Compressible Flow
Integrable Generalized Wave Equations Exhibiting a Hypoelastic Compressible Rate-Sensitive Material Flow (77-WA/APM-2) (A) **Je 111**
Hysteresis
The Steady-State Response of Systems With Hardening Hysteresis (77-DET-71) (A) **Ja 109**
Hysteretic Energy
The Effect of Material Constitutive Models on Stress Wave Propagation Calculations (77-WA/Mat-8) (A) **Je 109**

I

Ibrahim, Z. N. Evaluation of the Functional Capability of ASME Section III Class 1, 2 and 3 Piping Components (78-PVP-83) (A) **N 122**
ICEPEL Code
Comparison of ICEPEL Predictions with Single Elbow Flexible Piping System Experiment (78-PVP-55) (A) **N 118**
Ieong, L. On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) (A) **F 123**
Ihnatowicz, E. Experimental Study of Evaporation and Breakdown of Thin Liquid Films Driven by Shear Stresses (77-WA/HT-7) (A) **Ap 102**
Image Generation
Graphics Display Systems Speeds Design (BTR) **Ja 53**
Imbedded Heat Sources
Experiments on the Role of Natural Convection and Heat Source Arrangement in the Melting of a Solid (78-HT-47) (A) **O 97**
Immersed Pipe
Dynamic Plastic Response of an Immersed Pipe (77-PVP-8) (A) **Ja 107**
Impact
Computer Code for Predicting the Dynamic Response of High Energy Piping, Pressure Vessels, and Shell Structures Subjected to Transient Loads and Impacts (78-PVP-33) (A) **N 116**
A Simple Dynamic Model for Stimulating Draft-Gear Behavior In Rail-Car Impacts (78-RT-2) (A) **O 90**
Impact Absorbers
Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) (A) **Ja 108**
Impact Forming Machines
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/Prod-1) (A) **My 102**
Impact Loadings
Dynamic Finite Element Analysis of Cracked Bodies (78-PVP-94) (A) **N 123**
Impact Pressure
Rock Breakage with Pulsed Water Jets (77-Pet-78) (A) **Ja 106**
Impact Resistant Windshields
The Design and Development of Heated, Impact Resistant Windshields for Locomotives (78-RT-5) (A) **O 90**
Impact Statements
Environmental Impact Statements: A Guide to Preparation and Review (CB) **Jl 101**
Impact Strength
Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) (A) **Ja 101**
Impact Tests
The Application of Fracture Control Principles to Freight Car Center-Sill Structures (78-RT-7) (A) **O 91**
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**
Impacting Forming Machines
Determination of Dynamic Characteristics of an Impact Forming Machine Structure (77-WA/Prod-5) (A) **My 102**
Impagliazzo, A. M. Steam Surface Condenser Operating and Design Considerations (78-JPGC-Pwr-19) (A) **D 84**
Impinging Jet
Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**
Heat Transfer from Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) (A) **Ag 110**
Impulse Blade Cascades
Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) (A) **Jl 88**
Impulsive Loading
Safety Margin of Containment of Structures Under Impulsive Loading (78-PVP-68) (A) **N 120**
In-Bin Blending
A Continuous Recirculation System for In-Bin Blending of Granular Solids (77-Pet-63) (A) **Ja 105**
In-Flight Modes
Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**
In-Service Experience
JETFOIL In-Service Experience (78-GT-91) (A) **Ag 107**
In-Situ Gasification
Stress Response Investigations Related to In-Situ Gasification of Coal (77-Pet-25) (A) **Ja 101**
In Situ Leaching
Uranium Solution Mining—State of the Art (77-Pet-47) (A) **Ja 103**
Incineration Plants
Garbage Incineration Plant (IF) **Ap 64**
Incineration Plants Increase (IF) **F 62**
Incinerators
Heat and Air Conditioning from Factory Trash (BTR) **Ja 58**
Inclined Round Holes
Effect of Mainstream Variables on Jets Issuing From a Row of Inclined Round Holes (78-GT-138) (A) **Ag 113**
Incompressible Cascades
The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Cascades (77-WA/FE-5) (A) **Ap 93**
Incompressible Flow
Aerodynamic Force and Moment on Oscillating Airfoils in Cascade (78-GT-181) (A) **S 75**
Incompressible Fluid
Water Waves in a Nonhomogeneous Incompressible Fluid (77-WA/APM-27) (A) **Jl 99**
Incompressible Viscous Flow
A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**
Incropera, F. P. Optical Property Measurements for Suspensions of Unicellular Algae (78-HT-14) (A) **O 93**
Independent Gas Producers
Don't Tax the Independents (ES) **Ja 19**
Index Ratios
General Forms of Index Ratios and Generation of Variable Index Ratios by Series-Connected Geneva Mechanisms with Single or Multiple Driving Pins (78-DET-28) (A) **D 90**
Inducer Instability
An Experimental Investigation of Cavitating Inducer Instability (77-WA/FE-14) (A) **Ap 95**
Induction Heating
Feedback Control of Saw Blade Temperature with Induction Heating (77-WA/Prod-22) (A) **Je 105**
Industrial Boilers
Evaluation of Two Industrial Boilers with Combustion Modifications for Reduced Pollutant Emissions (77-WA/APC-1) (A) **My 101**
Industrial Corrosion
War on Industrial Corrosion (NB) **Ap 73**
Industrial Development
Industry and the Developing Countries **Ap 80**
Industrial Fuels
Can Coal-Oil Mixtures Make It as Industrial Fuels? **Mr 24**
Industrial Gas Generator
Design and Development of a Power Turbine for the Spey Gas Generator (78-GT-183) (A) **S 75**
Industrial Gas Turbines
An Analysis Procedure for the Validation of On-Site Performance Measurements of Gas Turbines (78-GT-152) (A) **Ag 115**
The Compact Industrial Gas Turbine—Recent Technical Improvements (78-GT-41) (A) **Jl 91**
Conceptual Design of a Coal-Fueled, Fluid Bed Combined Cycle Power Plant (77-WA/Ener-11) (A) **My 95**
Design of a Family of Packages for A 7500-kW Industrial Gas Turbine (78-GT-37) (A) **Jl 91**
Development of the Garrett GTPF990—A 5000-Horsepower Marine and Industrial Gas Turbine Engine (78-GT-44) (A) **Jl 92**
A Digital Approach to Industrial Gas Turbine Control (78-GT-39) (A) **Jl 91**
Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) (A) **Ag 114**
Fuel Flow Elements for Automotive and Small Industrial Gas Turbines (78-GT-17) (A) **Jl 88**
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) (A) **Jl 89**
Prototype Tests of a New 5-MW Industrial Gas Turbine (78-GT-131) (A) **Ag 112**
Industrial Heat Pump
Waste Heat Recycling System Replaces Gas Boiler (BTR) **N 67**
Industrial Machinery
The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) (A) **Ag 113**
Industrial Metalworking Processes
Principles of Industrial Metalworking Processes (CB) **Je 114**
Industrial Plants
Natural Gas Liquids Center (IF) **Ap 64**
Industrial Pollution
Electrostatic Filtration (EN) **Ap 75**
Industrial Power
The Attorney: A Role in Commercial Contracting (77-IPC-1) (A) **F 133**
Industrial Process Systems
A Comparison of Characteristics of Large Process Control

Computer Systems (77-WA/Aut-10) (A) **Je 103**
The Sun Shines Bright on U.S. Industry (ES) **Ja 18**
Industrial Productivity
Applied Productivity Analysis for Industry (CB) **F 134**
Industrial Revolution
Industrial Archaeological Sites of Britain (CB) **Je 114**
Industrial Rotary Engine
Industrial Rotary Engine Field Tests (BTR) **Ag 63**
Industrial Systems
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) (A) **S 72**
Industrial Turbine Gears
Advanced Industrial Turbine Gear Calculation Methods (78-GT-174) (A) **S 74**
Industrial Turbines
Aerodynamic Testing of a Low Stimulus, Efficient Exhaust Hood-Industrial Turbines (77-JPGC-Pwr-2) (A) **Mr 88**
Industrial Waste
World's Trash Can? (BTR) **F 53**
Industrial Waste Heat
Capturing Energy from Industrial Waste Heat **Ag 23**
Low-Grade Thermal Energy-Conversion Joule Effect Heat Engines (78-ENAs-7) (A) **N 110**
Industrialization Program
New Power Station (IF) **Ag 56**
Inelastic Stress Distribution
Inelastic Stress Distribution in Tubesheet Ligaments Under Thermal and Mechanical Loading (77-JPGC-NE-22) (A) **Mr 91**
Inert Atmosphere
Finite Element Analysis of a Large Ridge Inert Atmosphere Creep Test Specimen (78-PVP-7) (A) **O 102**
Inertia Force
Crack Propagation in Rotating Shafts (77-DET-164) (A) **F 130**
Inertial Load
Characteristics of a Novel Pneumatic Stepping Motor (77-WA/Fcs-7) (A) **Ap 97**
Infinite Array
The Elastic Energy of Interacting Edge Dislocations in an Infinite Array (77-WA/APM-20) (A) **Jl 98**
Infinite Elastic Space
On the Stress Field Due to Initial Strains in a Cuboid Surrounded by an Infinite Elastic Space (77-WA/APM-17) (A) **Jl 98**
Infinite Plates
On the Dynamic Expansion of a Circular Hole in an Infinite Plate (77-WA/APM-21) (A) **Je 111**
Inflow Conditions
Propeller Unsteady Thrust Due to Operation in Turbulent Inflows (78-GT-94) (A) **Ag 107**
Information Processes
Conference Stresses Practical Application of Computers (NR) **My 68**
Infrared Heaters
A Numerical Study of the Surface Thawing of Coal Cars (77-WA/HT-33) (A) **Ap 105**
Infrared Radiation
Comparison of Analytical Model with Approximate Models for Total Band Absorption and its Derivative (78-HT-15) (A) **O 93**
Inglis, M. E. Simulation of Helicopter Powerplant Performance (78-GT-51) (A) **Jl 93**
Initial Strains
On the Stress Field Due to Initial Strains in a Cuboid Surrounded by an Infinite Elastic Space (77-WA/APM-17) (A) **Jl 98**
Injection System
An Automatic Blending and Injection System for Tertiary Oil Recovery by Chemical Flooding (77-Pet-44) (A) **Ja 103**
Inlet Casing Geometry
Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-GT-185) (A) **S 75**
Inlet Data
Development of an Inlet for a Tilt Nacelle Subsonic V/STOL Aircraft (78-GT-121) (A) **Ag 111**
Inlet Distortion
Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**
Inlet Flow
Propagation of Inlet Flow Distortions Through an Axial Compressor Stage (78-GT-34) (A) **Jl 91**
Inlet Plenum Configuration
Flow in the Inlet Plenum Feature Model of the Clinch River Breeder Reactor (77-WA/FE-19) (A) **Ap 96**
Inlet Profile
Vaneless Diffuser Flow with Extremely Distorted Inlet Profile (78-GT-47) (A) **Jl 92**
Inlet Temperature
A Simple Method for the Prediction of Wall Temperatures in Gas Turbines (78-GT-90) (A) **Ag 90**
Innovation Control
Controlling Innovation: A People-Oriented Process **D 24**; (77-WA/Mgt-1) (A) **My 96**
Inoue, K. Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-46) (A) **Ja 112**
Inoue, M. Radial Vaneless Diffusers: A Re-Examination of the Theories of Dean and Senoo and of Johnston and Dean (78-GT-186) (A) **S 75**; Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) (A) **Ag 115**
Input-Output Equations
Degree of the Input-Output Equations of Certain Geared Five-Bar Mechanisms (78-DET-27) (A) **D 90**
Inservice Examinations
Recent Experience in Inservice Examinations (78-NE-13) (A) **N 116**
Inservice Inspection
Advances in Ultrasonics for Inservice Inspection (78-PVP-39) (A) **N 117**
Instability
Acoustic Radiation from a Venturi Type Flowmeter Due to Hydrodynamic Excitation (LWBR Development Program) (77-DET-165) (A) **F 130**
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) (A) **Ja 110**
Double-Diffusive Instability in a Density-Stratified Fluid Along a Heated Inclined Wall (78-HT-43) (A) **O 97**
Elastic-Plastic R-Curves (78-Mat-12) (A) **O 99**
An Experimental Investigation of Cavitating Inducer Instability (77-WA/FE-14) (A) **Ap 95**
Finite Amplitude Benard Convection of Purely Radiating Fluids (78-HT-40) (A) **O 96**
Finite Amplitude Instability and Penetrative Convection in a Rotating Fluid (78-HT-39) (A) **O 96**
On the Flutter Instability of a Suspension Bridge Using the Finite Element Method (77-DET-140) (A) **F 128**
Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) (A) **Ja 112**
Some Experiments on Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) (A) **Ja 109**
Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) (A) **O 96**
Instructional Materials
Socio-Technical Project (EN) **My 74**
Instrument Ball Bearings
Technology Transfer in the Determination of Torque Characteristics of Instrument Ball Bearings at High Speeds with Radial and Axial Loads (78-DET-69) (A) **D 94**
Instrument Design
Instrument Design for Vitreous Surgery Via the Pars Plana (77-WA/Bio-1) (A) **Mr 97**
Instrumentation Concepts
Instrumentation for Controlling and Monitoring Environmental Control and Life Support Systems (78-ENAs-40) (A) **D 87**
Instrumentation Development
New Developments in Instrumentation and Control (77-WA/PID-1) (A) **My 101**
Insulated Pipeline
The Internally Insulated Liquid Natural Gas Pipeline for Arctic Gas Recovery (77-WA/HT-17) (A) **Ap 103**
Insurance Act
Price-Anderson Atomic Plant Insurance Act: What It Is, and What It Is Not **D 66**
Insurance Legislation
Atomic Power Plant Insurance Act Violates the Constitution **My 80**
Intake Screenwell
Sediment Control for a Power Plant Intake Screenwell (77-JPGC-Pwr-15) (A) **Mr 89**
Integrated Membrane Evaporation System
A Thermoelectric Integrated Membrane Evaporation System (78-ENAs-19) (A) **N 112**
Integrated Power System
Second-Generation Integrated Coal Gasification/Combined-Cycle Power System (78-GT-14) (A) **Jl 88**
Intellectual Property Protection
Protecting Your Intellectual Property **Ja 27**
The Protection of Intellectual Property—A Design Function (77-DET-111) (A) **F 125**
Intensity Factors
Fatigue Crack Propagation of Short Cracks (78-Mat-7) (A) **O 100**
Inter-Tube-Pass Leakage
Study of Bolted Joint Integrity and Inter-Tube Pass Leakage in U-Tube Heat Exchangers—Part I: Analysis (77-WA/NE-6) (A) **Je 101**; Part II: Applications (77-WA/NE-7) (A) **Je 100**
Interactive Graphics
3-D Interactive Graphics Assist Diesel Engine Design **Mr 40**
Interactive Modeling
Interactive Modeling and Analysis of Open or Closed Loop Dynamic Systems with Redundant Actuators (78-DET-42) (A) **D 92**
Interface Cracks
On the Changing Order of Singularity at a Crack Tip (77-WA/APM-15) (A) **Jl 98**
Interface Pressure Distribution
Interface Pressure Distribution in a Bolt-Flange Assembly (77-WA/DE-11) (A) **Mr 94**
Intermediate Heat Exchanger
Flow Model Test Development of CRBRP Intermediate Heat Exchanger (77-JPGC-NE-10) (A) **Mr 90**
Internal Combustion Engines
Plasma Igniter for Internal-Combustion Engines (BTR) **D 42**
Internal Gears
The Geometrical Analysis on Gear Skiving of Internal Gears (77-DET-133) (A) **F 127**
Analytical and Experimental Stress Analysis of a Cylinder-to-Cylinder Structure (77-PVP-11) (A) **Ja 108**
Internal Pressure
Elastic and Elastic-Plastic Buckling of Internally-Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) (A) **N 117**
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) (A) **O 102**
Internally Finned Tubes
Evaporative Heat Transfer and Pressure Drop Performance of Internally-Finned Tubes with Refrigerant 22 (77-WA/HT-25) (A) **Ap 104**
Internally Geared Device
Vibrations and Vibrationless Rotation-Reciprocation Internally Geared Device, and on Vibrationless Chain Saw Utilizing This Device (77-DET-157) (A) **F 129**
International Competition
King of the Mountain—Are We Still Playing the Game? (WW) **Jl 66**
International Contract
Formulating an International Contract for Engineering and Technical Services (77-WA/Mgt-4) (A) **My 96**
International Market
Business Opportunities in Energy Conservation (ES) **O 46**
International Metalworking Technology
1978 Machine Tool Show (NB) **Ag 74**
International Systems of Units
Steam Tables: Thermodynamic Properties of Water Including Vapor, Liquid, and Solid Phases (CB) **N 127**
Intersecting Storage Accelerator
On the Trial of the Quark (BTR) **D 37**
Intershaft Squeeze Film Dampers
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) (A) **Ja 110**
Inubushi, M. A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbiries (78-GT-132) (A) **Ag 112**
Inventions
"But Will It Fly?"—Inventors Exhibit Their Wares (NR) **S 58**
Centennial of Light will Celebrate Edison's Invention in 1979 (NR) **O 66**
Inventory Management
Scale Models Replace Piping Drawings (BTR) **S 52**
Inverse Heat Conduction
Application of the Finite Element Method to the Inverse Heat Conduction Problems (77-WA/TM-4) (A) **My 96**
An Iterative Approach to the Solution of Inverse Heat Conduction Problems (77-WA/TM-2) (A) **My 95**
Investment Comparison
Shaft Couplings and the Cinderella Syndrome (77-DET-132) (A) **F 127**
Investment Projects
Cash Flow and the Analysis of Capital Investments

(77-WA/Mgt-3) (A) **My 96**

Involute Worm Gearing
A Study on Involute Worm Gearing on Non-Right Axial Angle (77-DET-36) (A) **Ja 110**

Ion-Bombarded Surfaces
Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) (A) **Ja 113**

Ion Exchange Resins
Control of Nuclear Fuel Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**

Ionizing Radiation
Little Boy and Fat Man (BTR) **Je 56**

Ionosphere Probe
Ionosphere Probe for Ice Age Clues (BTR) **O 48**

Iron-Catalyzed Bosch Process
Limitations on Water Production in the Iron-Catalyzed Bosch Process (78-ENAs-4) (A) **N 110**

Iron Ores
Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) (A) **Ja 101**

Ironing Ring Angle
A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) (A) **Je 104**

Irradiated Pressure Vessel Steels
Reference Fracture Toughness Curves for Irradiated Pressure Vessel Steels (78-Mat-20) (A) **O 101**

Irradiation
Development of Structural Design Criteria for Highly Irradiated Core Components (78-PVP-78) (A) **N 121**

Irradiation Damage
Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation (77-WA/HT-45) (A) **My 100**

Irradiation Effects
Effects of Irradiation on A508 Class 2 and 3 Forging Grade Steels (78-Mat-21) (A) **O 101**

Irrigation System
Sunshine and Irrigation (ES) **Ag 22**

Isaacson, R. J. Kinematics of Jaw Growth (77-WA/Bio-15) (A) **Ap 99**

Ishibashi, A. Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling Sliding Conditions (77-DET-47) (A) **Ja 112**; Super-Precision Single-Flank Gear Testing Machine (77-DET-118) (A) **F 126**

Ishida, K. Theroetical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) (A) **F 131**; Vibrations and Vibrationless Rotation-Reciprocation Internally Geared Device, and on Vibrationless Chain Saw Utilizing This Device (77-DET-157) (A) **F 129**

Ishigaki, T. Research of the XF3-1 Turbofan Engine (78-GT-199) (A) **S 76**

Ishihara, K. Critical Review of Correlations for Predicting Two-Phase Flow Pressure Drop Accross Tube Banks (77-WA/HT-23) (A) **Ap 104**

Ishikawa, J. Manufacturing Method of Large-Size Marine High-Pressure Gears (77-DET-35) (A) **Ja 110**

Isolators
One-Stage and Two-Stage Vibration Isolators as Applied to High-Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) (A) **F 124**

Isothermal Surface
Natural Convection from a Vertical Isothermal Surface Imbedded in a Saturated Porous Medium (78-HT-55) (A) **O 97**

Isothermal Wall
Structure of a Turbulent Thermal Plume Rising Along an Isothermal Wall (78-HT-24) (A) **O 94**

Isotropic Flows
Spectral Analogy Between Temperature and Velocity Fluctuations in Various Turbulent Flows (78-HT-2) (A) **O 92**

Israelson, H. *(author)* Monitoring Underground Nuclear Explosions (CB) **Jl 100**

Itao, K. Wide-Band Band Random Vibration of Circular Plates (77-DET-97) (A) **F 123**

Iten, O. Prototype Tests of a New 5-MW Industrial Gas Turbine (78-GT-131) (A) **Ag 112**

Ito, Y. Interface Pressure Distribution in a Bolt-Flange Assembly (77-WA/DE-11) (A) **Mr 94**

Itoh, M. A Study of Thermal Fatigue Life Prediction of Air-Cooled Turbine Blades (78-GT-63) (A) **Jl 95**

Iwamoto, T. A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbines (78-GT-132) (A) **Ag 112**

Iyer, P. A. Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) (A) **O 96**

J

J-Integral Determination
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**

Jackman, A. H. The Nuclear Equipment Arrangement of Darlington Generating Station (78-NE-11) (A) **N 115**

Jackson, D. Heat Pipe Mirrors for High Power Lasers (78-HT-60) (A) **O 98**

Jackson, G. W. Availability Engineering for Coal-Fired Power Projects (78-PVP-12) (A) **O 102**

Jackson, R. J. Fuel Pin Bundle and Hexagonal Duct Mechanical Interaction (78-PVP-48) (A) **N 117**

Jacoba, D. Microcomputer Implementation of Direct Digital Control Algorithms for Thermal Process Control Applications (77-WA/Aut-3) (A) **Je 102**

Jacox, J. O. A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) (A) **Ag 109**

Jaffe, W. Pattern Control Actuator Design for Electronically Controlled Sewing Machine (78-DE-13) (A) **S 74**

Jagels, R. E. Stress Analysis for the Design of Liquid Metal Piping in the Fast Flux Test Facility (78-PVP-21) (A) **O 103**

Jain, S. C. Attributes of an Ideal Water-Base, Nonpolluting Hot Forging Lubricant (77-Lub-33) (A) **Mr 87**

Jaisingh, G. Flow Model Test Development of CRBRP Intermediate Heat Exchanger (77-JPGC-NE-10) (A) **Mr 10**

James, L. A. Frequency Effects in the Elevated Temperature Crack Growth Behavior of Austenitic Stainless Steel—A Design Approach (78-PVP-97) (A) **N 123**

Jandrasits, W. G. The Elastic-Dynamic Behavior of a Counterweighted Rocker Link with an Overhanging Endmass in a Four-Bar Linkage Part I: Theory (78-DET-23) (A) **D 90**; Part II: Application and Experiment (78-DET-24) (A) **D 90**

Janke, S. Thermal Stress Effects and Surface Cracking Associated With Laser Use on Human Teeth (77-WA/Bio-3) (A) **Mr 97**; (77-WA/HT-43) (A) **My 100**

Japan Atomic Energy Research Institute
Fracture Mechanics Analysis of JAERI Model Pressure Vessel Test (78-PVP-91) (A) **N 122**

Japikse, D. Annular Diffuser Performance for an Automotive Gas Turbine (78-GT-147) (A) **Ag 114**

Jarach, F. *(recipient)* Rice-Cullimore Scholarship **N 101**

Jarvis, J. L. Performance of Composite Flat Belt Drive Materials Under Simulated Power Transmission (77-DET-167) (A) **F 130**

Jasinski, T. Thermosyphon Analysis of a Thermic Diode Solar Heating System (77-WA/Sol-9) (A) **My 98**

Jasuja, A. K. Atomization of Crude and Residual Fuel Oils (78-GT-83) (A) **Ag 106**

Jaw, L. PWR Normal Shutdown Transient Response Using Runge-Kutta's Technique (78-JPGC-Pwr-1) (A) **D 82**

Jaw Growth
Kinematics of Jaw Growth (77-WA/Bio-15) (A) **Ap 99**

Jay, R. L. Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) (A) **Ag 109**

Jedruch, J. Atomic Issues (C) **Jl 42**

Jefferis, T. Marine Gas Turbines in the Royal Navy 1976-1978 (78-GT-197) (A) **S 76**

Jelks, M. Pollution Solution Questioned (C) **N 56**

Jellison, J. L. Gas Pressure Bonding of Stratapax (77-Pet-72) (A) **Ja 105**

Jendrzejczyk, J. A. Dynamic Response of a Circular Cylinder Subjected to Liquid Cross Flow (78-PVP-15) (A) **O 103**; Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) (A) **F 123**; Vibration of a Heat Exchanger Tube/Support Impact (77-JPGC-NE-5) (A) **Mr 90**; Vibro-Impact Responses of a Tube with Tube-Baffle Interaction (78-PVP-20) (A) **O 103**

Jenniges, R. L. Alternative Tuned Absorbers for Steady-State Vibration Control of Tall Structures (77-DET-84) (A) **Ja 115**

Jennings, K. E. Decometer: A Microprocessor-Based Decompression Computer for Divers (77-WA/Oce-8) (A) **Ap 93**

Jet Aircraft
Alternative Aircraft Fuels (78-GT-59) (A) **Jl 94**

Jet Cooling
Jet Cooling at the Rim of a Rotating Disk (78-GT-25) (A) **Jl 89**

Jet Curtain Flameholder
Jet Curtain Flameholder for Aircraft Afterburners (78-GT-95) (A) **Ag 107**

Jet Cutting
Morrison and Parry Seals for Water Pressures up to 345 MPa (78-PVP-13) (A) **O 103**

Jet Decay
Decay of the Argon Plasma Jet Surrounded by Ar, He, N_2 and H_2 Gases (78-HT-12) (A) **O 93**

Jet Engine Dynamics
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) (A) **Ag 109**

Jet Flow
Linear Stability of Jet Flows (77-WA/APM-10) (A) **Je 111**
Study of Lubrication Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) (A) **F 124**

Jet Fuel
Test Results of a New Distillate Fuels Purification System (78-GT-203) (A) **S 77**

Jet Mainstream Variables
Effect of Mainstream Variables on Jets Issuing From a Row of Inclined Round Holes (78-GT-138) (A) **Ag 113**

Jet Parameters
High Energy Water Jet Cutting Equations for Wood (77-WA/Prod-18) (A) **Je 104**

Jet Penetration
Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) (A) **Je 107**

Jet Velocity
Explosion Welding **My 28**

Jets
Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**
Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) (A) **Ag 110**
Heated Three-Dimensional Turbulent Jets (77-WA/HT-27) (A) **Ap 104**
Jet Partitioned Fluid Amplifiers (77-WA/Fics-2) (A) **Ap 97**
On Prediction and Unified Correlation for Decay of Vertical Buoyant Jets (78-HT-21) (A) **O 94**
Rock Breakage with Pulsed Water Jets (77-Pet-78) (A) **Ja 106**

Job Prospects
Job Prospects Improve for Some College Graduates (EN) **My 74**
Job-Prospects Still Good (EN) **F 68**

Johnson, B. M. Approximate Analysis of Heat Transfer from the Surface of a Wet Finned Heat Exchanger (78-HT-26) (A) **O 94**

Johnson, C. E. Experimental Evaluation and Analysis of Thermistor Probes for Recording Clinical In Vivo Temperatures (77-WA/HT-41) (A) **My 100**; Numerical Linearization of Themistor Bridge Circuits for In Vivo Medical Research (77-WA/Bio-14) (A) **Ap 99**

Johnson, D. P. Controlled Reluctance Eddy Current Inspection of Steam Turbine Blades (78-JPGC-Pwr-6) (A) **D 83**

Johnson, E. T. 20 HP Mini-RPV Demonstrator Engine Programs (78-GT-200) (A) **S 76**

Johnson, K. W. Operating Experience on Residual Fuel Oil with A W251 Combustion Turbine (78-GT-104) (A) **Ag 108**

Johnson, L. H. Designing for Reliability the Large Steam Turbine Mark II Control System (77-JPGC-Pwr-4) (A) **Mr 88**

Johnson, M. R. Summarization and Comparison of Freight Car Truck Load Data (77-WA/RT-3) (A) **Mr 84**

Johnson, W. S. Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) (A) **Je 109**

Joint Automatic Control Conference
1978 Automatic Control Conference: Get Involved **F 115**

Joint Displacements
Joint Displacements in Linkage Synthesis Solutions (78-DET-43) (A) **D 92**

Joint Integrity
Study of Bolted Joint Integrity and Inter-Tube Pass Leakage in U-Tube Heat Exchangers—Part I: Analysis (77-WA/NE-6) (A) **Je 101**; Part II: Applications

(77-WA/NE-7) (A) **Je 100**

Joint Power Generation

Aerodynamic Testing of a Low Stimulus, Efficient Exhaust Hood-Industrial Turbine (77-JPGC-Pwr-2) (A) **Mr 88**

A 1977 Approach to Sulfur Oxide Emissions (77-JPGC-Pwr-1) (A) **Mr 88**

Designing Fuel Treatment Programs for Gas-to-Oil Converted Central Station Boilers (77-JPGC-Pwr-13) (A) **Mr 89**

Designing for Reliability the Large Steam Turbine Mark II Control System (77-JPGC-Pwr-4) (A) **Mr 88**

Economic Analysis of Boiler Feed Pump Drive (77-JPGC-Pwr-8) (A) **Mr 88**

Long Arc Shrouding—A Reliability Improvement for Untuned Steam Turbine Blading (77-JPGC-Pwr-12) (A) **Mr 89**

Operating Economics and Unit Availability (77-JPGC-Pwr-5) (A) **Mr 88**

An Optimization Strategy for Control of SO_x from Coal-Fired Power Plants (77-JPGC-Pwr-16) (A) **Mr 89**

Outage Factors—An Aid to Analyzing Electric Generating Unit Reliability (77-JPGC-Pwr-9) (A) **Mr 88**

Power Plant Productivity Trends and Improvement Possibilities (77-JPGC-Pwr-11) (A) **Mr 89**

Power System Economics: on Selection of Engineering Alternatives (77-JPGC-Pwr-7) (A) **Mr 88**

Reliability of Operating Power Plants—A Utility Viewpoint (77-JPGC-Pwr-10) (A) **Mr 89**

Sediment Control for a Power Plant Intake Screenwell (77-JPGC-Pwr-15) (A) **Mr 89**

The Turbine Fatigue and Creep Evaluator Determination of Cumulative Low-Cycle Fatigue and Creep from Steam Turbine Operational Measurements (77-JPGC-Pwr-3) (A) **Mr 88**

Joint Rotation

Compliance of the Human Ankle Joint (77-WA/Bio-2) (A) **Mr 97**

Joint Torque Data

Determining Muscle Forces in the Leg During Normal Human Gait—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) (A). **Ap 98**

Joint Torque Systems

Generalized Force Curve Shapes for Structural Synthesis of Joint Torque Systems to Produce a Desired Dynamic Motion Time Response of a 4R-Bar (78-DET-39) (A) **D 92**

Joints

A Motion Analysis of a Riser Upper Joint Interacting with a Floating Vessel (77-Pet-40) (A) **Ja 102**

Origin and Spacing of Cleats in Coal Beds (77-Pet-24) (A) **Ja 101**

Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) (A) **Ja 106**

Jones, A. H. On the Stimulation of Geothermal Reservoir by Downward Hydraulic Fracturing (77-Pet-81) (A) **Ja 107**

Jones, C. K. Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-16) (A) **Ja 113**

Jones, D. G. Low NOx Combustion of Paraho Shale Oil in a 45-MW Utility Boiler (77-WA/Fu-1) (A) **My 92**

Jones, R. G. The F-16 Environmental Control System (78-ENAs-11) (A) **N 112**

Jones, R. M. Buckling of Rectangular Cross-Ply Laminated Plates with Nonlinear Stress-Strain Behavior (78-PVP-64) (A) **N 119**

Jones, T. V. Heat Transfer Distribution on Annular Fins (78-HT-30) (A) **O 96**

Jonsson, H. Load Distribution in Timing Belts (77-DET-100) (A) **F 124**

Jordan, K. Development of Gas Turbine Performance Seeking Logic (78-GT-13) (A) **Jl 88**

Joshi, D. S. New Directions in Engineering Education **Jl 38**; New Directions in Engineering Education Suggestions for Developed Countries (77-WA/TS-6) (A) **My 99**

Joule Effect Heat Engines

Low-Grade Thermal Energy Conversion Joule Effect Heat Engines (78-ENAs-7) (A) **N 110**

Joule Heating

Effects of Joule Heating on Plasma Heat Transfer (78-HT-11) (A) **O 93**

Journal Bearings

An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) (A) **Mr 87**

On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) (A) **Mr 86**

Jude, P. F. An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Jl 94**

Juhasz, S. Metric Song (C) **Mr 47**

Jung, D. J. USS Oliver Hazard Perry (FFG-7) Guided Missile Frigate Propulsion System Land Based Test Site Operational Experience (78-GT-150) (A) **Ag 115**

Juricic, J. Response of Collecting Plates in Electrostatic Precipitators Due to Shear Rapping (77-DET-98) (A) **F 124**

Jurla, K. The Effectiveness of Flue Gas Desulfurization Systems in Reducing Power Plant Ambient Air Quality Impacts (77-JPGC-Pwr-63 (A) **Mr 88**

Just, Ch. Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) (A) **Ag 114**

K

Kabiri-Bamoradian, K. Finite Amplitude Benard Convection of Purely Radiating Fluids (78-HT-40) (A) **O 96**

Kaczenski, E. S. Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) (A) **Ap 101**

Kahr, J. C. Braking Duty in North American Freight Train Service and Effects on Brake Equipment, Brake Shoes and Wheels (78-RT-9) (A) **O 91**

Kakad, Y. P. Optimization of a Nonlinear Torsional Mechanical System (77-DET-107) (A) **F 125**

Kalaycioglu, S. Determination of the Critical Operating Speeds of Planar Mechanisms by the Finite Element Method Using Planar Actual Line Elements and Lumped Mass Systems (78-DET-37) (A) **D 91**; Elastodynamics of Planar Mechanisms Using Planar Actual Finite Line Elements, Lumped Mass Systems Matrix-Exponential Method, and the Method of "Critical-Geometry-Kineto-Elasto-Statics" (CGKES) (78-DET-26) (A) **D 89**

Kaliski, E. J. Protecting Your Intellectual Property **Ja 27**; The Protection of Intellectual Property—A Design Function (77-DET-111) (A) **F 125**

Kamchi, J. S. Propulsion Test Facilities Technical Capabilities and International Use (78-GT-184) (A) **S 75**

Kamljo, K. An Experimental Investigation of Cavitating Inducer Instability (77-WA/FE-14) (A) **Ap 5**

Kaminski, J. Propulsion System Considerations for the Subsonic V/STOL (78-GT-57) (A) **Jl 94**

Kane, T. R. Experimental Investigation of Performance Characteristics of Flexible Shaft Couplings (77-DET-129) (A) **F 127**

Kannel, J. W. A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) (A) **F 132**; A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) (A) **Mr 86**

Kanzawa, A. Decay of the Argon Plasma Jet Surrounded by Ar, He, N_2 and H_2 Gases (78-HT-12) (A) **O 93**; Effects of Joule Heating on Plasma Heat Transfer (78-HT-11) (A) **O 93**

Kao, G. C. Evaluation of Scale-Model for Operability Qualification of Seismic Loading (77-PVP-63) (A) **Ja 108**

Kao, T. T. Thermal/Hydraulic Design of Dry-Saturated Steam Evaporators for a Large Fast Breeder Reactor Plant (78-JPGC-NE-7) (A) **D 85**

Kaplan, H. Firefighters Integrated Response Equipment System (78-ENAs-39) (A) **N 113**

Karger, D. W. *(author)* Engineered Work Measurement (CB) **My 106**

Kamopp, D. Analysis and Simulation of Planar Mechanism Systems Using Bond Graphs (78-DET-2) (A) **D 87**

Kash, D. E. *(author)* Our Energy Future: The Role of Research, Development, and Demonstration in Reaching a National Consensus on Energy Supply (CB) **Ja 117**

Kass, J. N. Radiation Effects in Boiling Water Reactor Pressure Vessel Steels (78-Mat-11) (A) **O 99**

Kasten, P. R. Use of Thorium in Power Reactors (77-JPGC-NE 24) (A) **Mr 92**

Kataoka, K. Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**

Kato, M. Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-46) (A) **Ja 112**

Katsumata, I. A Study of Thermal Fatigue Life Prediction of Air-Cooled Turbine Blades (78-GT-63) (A) **Jl 95**

Katz, B. The Atomics International Open Loop and Closed Loop Aqueous Carbonate Processes—A Current Assessment (78-JPGC-Pwr-15) (A) **D 83**

Katz, S. Column Separation as a Feedback Mechanism in Liquid Oscillators (77-Flcs-4) (A) **Ap 96**; A Network Approach to Brake Pipe Leakage (77-WA/Flcs-10) (A) **Ap 97**

Katz, Y. Design Considerations for Future Heat Recovery Boilers Aboard Naval Vessels (78-GT-162) (A) **Ag 105**

Kaupang, B. M. A New Approach to Planning with Gas Turbines (77-JPGC-GT-3) (A) **Mr 93**

Kavanagh, T. C. *(author)* Construction Management: A Professional Approach (CB) **O 107**

Kawahara, M. Shear Fracture Propagation by DCB Testing (77-Pet-33) (A) **Ja 101**

Kawashima, Y. Investigation Concerning Rotating Stall and Surge Phenomena within Centrifugal Compressor Channels (78-GT-9) (A) **Jl 87**

Kaya, W. M. The Structure of a Boundary Layer on a Rough Wall with Blowing and Heat Transfer (78-HT-3) (A) **O 92**

Kear, E. B., Jr. The Effect of Certain Major Parameters on the Annual Effectiveness of Solar Systems for Residential Dwellings (77-WA/Sol-3) (A) **My 97**

Kear, E. B., III The Effect of Certain Major Parameters on the Annual Effectiveness of Solar Systems for Residential Dwellings (77-WA/Sol-3) (A) **My 97**

Kececioglu, D. Mechanical Reliability Confidence Limits (77-WA/DE-12) (A) **Mr 94**

Keck, L. J. Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) (A) **Ja 103**

Keenan, J. H. *(author)* Steam Tables: Thermodynamic Properties of Water Including Vapor, Liquid, and Solid Phases (CB) **N 127**

Kelly, R. E. Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) (A) **O 96**

Kenchington, J. M. An Evaluation of Liquid Radioactive Waste Treatment Systems for CANDU-PHW (78-JPGC-NE-17) (A) **D 86**

Kennedy, J. M. Quasi-Eulerian Finite Element Formulation for Fluid-Structure Interaction (78-PVP-60) (A) **N 119**

Kennedy, W. C. Phase Change in Liquid Face Seals (77-Lub-12) (A) **Mr 85**

Kenosian, H. Real-Time Force Line Visualization: Bioengineering Applications (77-WA/Bio-6) (A) **Mr 97**

Kentfield, J. A. C. A New Light-Weight Warm-Air Blower for Rapidly Pre-Heating Cold-Soaked Equipment (77-WA/HT-20) (A) **Ap 103**

Kenyon, D. J. A Specialized Microporcessor System for Decompression Management of Deep Diving (77-WA/Oce-7) (A) **Ap 93**

Kenyon, R. A. Elections to Fellow Grade **O 88**

Kestin, J. Hybrid Fossil-Geothermal Power Plants (77-WA/Ener-2) (A) **My 93**; Hybrid Geothermal—Fossil Power Plants **D 28**; *(editor)* The Second Law of Thermodynamics (CB) **Je 112**; Thermal Conductivity of Water and Steam **Ag 46**

Kettelkamp, D. B. Design of a Load Simulator for the Dynamic Evaluation of Prosthetic Knee Joints (78-DET-59) (A) **D 94**

Keyser, D. R. Laser Flow Measurement (77-WA/FM-2) (A) **Ap 100**

Kezios, S. Peter ASME's Centennial—Let's Celebrate! (Ed) **My 17**; Engineeng - A Social Force **Je 34**; On Engineering and Change (Ed) **Ja 17**; Engineers—Strength in Crisis (Ed) **F 25**; Introspection—Our Hidden Strength (Ed) **Ap 19**; Retrospection—Pathway to the Future (Ed) **Je 17**; What Technology Transfer? (Ed) **Mr 17**

Khafagy, S. Analysis of Pneumatically Driven Double-Acting Reciprocating Pumps (78-DE-19) (A) **O 91**

Khalifa, H. E. Hybrid Fossil-Geothermal Power Plants (77-WA/Ener-2) (A) **My 93**; Hybrid Geothermal—Fossil Power Plants **D 28**; A New Approach for Increasing the Thermal Efficiency of Steam Power Cycles (78-JPGC-Pwr-2) (A) **D 82**

Khalil, E. E. Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) (A) **My 96**

Khan, M. R. A Hierarchy of Methods for Analysis of Elastic Mechanisms with Design Applications (78-DET-56) (A) **D 92**; Mechanism Optimization Via Optimality

Criterion Techniques (78-DET-53) (A) **D 91**; Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) (A) **Ja 111**

Kibbey, A. H. Summary of the ORNL-Sponsored Reactor Radwaste Management Workshop (77-JPGC-NE-14) (A) **Mr 91**

Kicka, J. C. Pressure Instrumentation for Gas Turbine Engines—A Review of Measurement Technology (78-GT-148) (A) **Ag 114**

Kilparti, S. R. The Thermoelastic Patch Contact Problem for Large Peclet Number (77-Lub-32) (A) **Mr 87**

Kim, Y. S. Derivation of Cost Factor for Novel Mining Energy Source Minerals (77-Pet-46) (A) **Ja 103**

Kind, R. W. Tubular Gas Turbine Recuperators (77-WA/HT-8) (A) **Ap 102**

Kinematic Analysis

Experimental Kinematic Analysis and a New Technique of Synthesis of an Elastic Four Bar Chain (78-DET-63) (A) **D 94**

Kinematic Analysis of a Seven-Link Mechanism (78-DET-55) (A) **D 92**

The Kinematic and Force Analysis of Upper Extremity-Orthosis Systems (78-DET-51) (A) **D 93**

Rapid Algorithms for Kinematic and Dynamic Analysis of Planar Rigid Linkages with Revolute Joints (78-DET-64) (A) **D 94**

Kinematic Chains

Structural Analysis of Kinematic Chains and Mechanisms Based on Matrix Representation (78-DET-29) (A) **D 90**

Kinematic Synthesis

Chebychev Approximations of Finite Point Sets with Application of Planar Kinematic Synthesis (78-DET-25) (A) **D 90**

Kinematics

Kinematics of an Epicyclic Gear Pump (78-DET-13) (A) **D 88**

Kinetic Device

Milliamps Go A Long Way (BTR) **Ja 54**

Kinetic Energy

"Big Bang Was a 'Cool' Show" (C) **My 51**

Kingsbury, E. P. Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) (A) **Mr 86**

Kinney, C. Effects of Steam Injection on the Performance of Gas Turbine Power Cycles (78-GT-11) (A) **Ji 87**

Kinoshita, Y. Experimental Study on Flow in a Supersonic Centrifugal Impeller (78-GT-2) (A) **Ji 87**; Limits of Rotating Stall and Stall in Vaneless Diffuser of Centrifugal Compressors (78-GT-19) (A) **Ji 88**

Kipp, R. M. Thermal Damage and Rail Load Stresses in a 33-In. Railroad Car Wheel (77-WA/RT-2) (A) **Mr 84**

Kirk, J. A. Stress Analysis and Maximization of Energy Density for a Magnetically Suspended Flywheel (77-WA/DE-24) (A) **Mr 96**; Stress Redistribution for the Multiring Flywheel (77-WA/DE-26) (A) **Mr 96**

Kirtley, J. L., Jr. Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) (A) **Mr 95**

Kishi, M. An Analytical Method for Fixed Tubesheet Heat Exchangers and Its Experimental Verification (78-PVP-77) (A) **N 120**

Kissinger, L. D. The Dependence of the CO_2 Removal Efficiency of LiOH on Humidity and Mesh Size (78-ENAs-5) (A) **N 110**

Kitagawa, T. Analytical Prediction of Three-Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) (A) **Je 104**

Kitz, G. T. Evaluation of the Functional Capability of ASME Section III Class 1, 2 and 3 Piping Components (78-PVP-83) (A) **N 122**

Kleeman, M. Compact Metallic and Ceramic Recuperators for Gas Turbines (78-GT-62) (A) **Ji 95**

Kleiner, G. N. Extended Duration Orbiter Life Support Definition (78-ENAs-42) (A) **D 87**

Kliger, H. S. Simplified Design with Graphite-Reinforced Plastics **Je 38**

Klompas, N. Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) (A) **Ag 109**

Knee Joints

Design of a Load Simulator for the Dynamic Evaluation of Prosthetic Knee Joints (78-DET-59) (A) **D 94**

Feasibility of an Active Control Scheme for Above Knee Prostheses (77-WA/Bio-8) (A) **Ap 98**

Knight, J. T. An Evaluation of New Filter/Demineralizer Precoat Materials (78-JPGC-NE-16) (A) **D 86**

Knight, W. A. Determination of Dynamic Characteristics of an Impact Forming Machine Structure (77-WA/Prod-5) (A) **My 102**

Knowlton, D. E. Control of Nuclear Fuel Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**

Ko, P. L. Experimental Studies of Tube Fretting in Steam Generators and Heat Exchangers (78JPVP-22) (A) **O 103**

Kobayashi, A. S. An Analysis of the Propagation of a Brittle Circumferential Crack in a Pipe Subjected to Axial Stresses (78-PVP-101) (A) **N 124**; Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**; Embedded Elliptical Crack at a Corner (78-PVP-5) (A) **O 102**; A Procedure for Estimating the Stress Intensity Factor of a Flattened Surface Crack at a Nozzle Corner (78-PVP-95) (A) **N 123**

Kobayashi, S. Elections to Fellow Grade **Je 97**

Kobayashi, T. A Photoelastic Evaluation of the Method of Measuring Crack Arrest Toughness with a Tapered DCB Specimen (78-Mat-15) (A) **O 100**

Kodotani, K. Effect of Mainstream Variables on Jets Issuing From a Row of Inclined Round Holes (78-GT-138) (A) **Ag 113**

Kofmann, E. As a Reader Sees It (C) **N 57**

Koga, T. Study on the Resistivity of Various Types of Steels Against Propagating Shear Fracture by Modified West Jefferson Type Burst Test (78-PVP-71) (A) **N 120**

Kohli, D. Human Factors in Machine Design (78-DET-68) (A) **D 94**

Kohser, R. A. Disk and Strip Forging With Side-Surface Foldover: Part 1—Velocity Field and Upper Bound Analysis (77-WA/Prod-36) (A) **Je 107**; Part 2—Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) (A) **Je 107**

Kohzu, M. Research of the XF3-1 Turbofan Engine (78-GT-199) (A) **S 76**

Koinsberg, A. Reasons for Centrifugal Compressor Surging and Surge Control (78-GT-28) (A) **Ji 90**

Kojima, M. The Geometrical Analysis on Gear Skiving of Internal Gears (77-DET-133) (A) **F 127**

Kokainish, M. A. On the Nonlinear Response of a Relief Valve (77-DET-81) (A) **F 122**

Kolodziej, R. Torsional Response of Compressor Shaft Systems During Synchronous Motor Startup. Part I—Analytical Model (77-Pet-49) (A) **Ja 103**; Part II—Field Measurement Techniques (77-Pet-60) (A) **Ja 104**; Part III—Abnormal Motor Conditions (77-Pet-56) (A) **Ja 104**

Komai, T. Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**

Komanduri, R. The Conflicting Roles of Carbon Tetrachloride as a Boundary Lubricant (77-WA/Prod-7) (A) **Je 104**

Konstantinov, M. S. Geometric Characteristics Design and Manufacturing of Noncircular Gears (77-DET-177) (A) **F 131**

Konz, S. Design Considerations for Dry Ice Garments (78-ENAs-32) (A) **N 113**

Kool, P. An Axial Compressor End-Wall Boundary Layer Calculation Method (78-GT-81) (A) **Ag 105**; Experimental Study of an Axial Compressor Rotor Transfer Function with Nonuniform Inlet Flow (78-GT-69) (A) **Ji 96**; The Three-Dimensional Flow and Blade Wake in an Axial Plane Downstream of an Axial Compressor Rotor (78-GT-66) (A) **Ji 95**

Koren, Y. Flank Wear Model of Cutting Tools Using Control Theory (77-WA/Prod-20) (A) **Je 105**

Koshiga, F. Shear Fracture Propagation by DCB Testing (77-Pet-32) (A) **Ja 101**

Kosson, R. I. Thermal Energy Storage Heat Exchanger Design (78-ENAs-30) (A) **D 86**

Kot, C. A. Pressure Transient Analysis in Piping Systems Including the Effects of Plastic Deformation and Cavitation (78-PVP-56) (A) **N 118**

Kotlin, J. J. Higher Fuel Efficiency for EMD Diesel Locomotives (78-RT-4) (A) **O 90**

Kotnick, G. September Statements (C) **F 52**

Kotwal, R. Erosion Study in Turbomachinery Affected by Coal Ash Particles (78-GT-136) (A) **Ag 113**

Kounadis, A. N. Stability of Elastically Restrained Timoshenko Cantilevers with Attached Masses Subjected to a Follower Force (77-WA/*AE M*-7) (A) **Ji 97**

Koury, A. J. Costs and Causes of Maintenance in a Ship's Diesel Propulsion System (77-WA/Lub-2) (A) **Ji 96**

Kovats, A. Elections to Fellow Grade **Je 97**

Kovnat, A. R. Must We Forego Plutonium? (C) **D 36**; Performance of GM10B Electric Locomotive (C) **Mr 48**

Kozluk, M. J. Finite Element Analysis of a Cylinder-to-Plate Intersection (78-PVP-17) (A) **O 103**

Kowalski, J. Optimal Synthesis of Double Reduction Helical Gear Units by Nonlinear Programming (77-DET-171) (A) **F 130**; (77-DET-172) (A) **F 130**

Koyama, H. Stabilizing and Destabilizing Effects of Coriolis Force on Two-Dimensional Laminar and Turbulent Boundary Layers (78-GT-1) (A) **Ji 87**

Krajcinovic, D. Dynamic Plastic Response of an Immersed Pipe (77-PVP-8) (A) **Ja 107**

Kramer, L. D. Avoiding Corrosion of Steam Turbine Components During Erection and Layup (78-JPGC-Pwr-5) (A) **D 83**

Kramer, M. L. Ambient Ground-Level Sulfur Dioxide Concentrations in the Vicinity of a Multiple Stack Power Plant During and After Operation (77-WA/APC-4) (A) **My 102**

Krapp, R. Nonsteady Operational Behavior of Single-Shaft and Two-Shaft Closed-Cycle Gas Turbines (78-GT-15) (A) **Ji 88**

Krase, J. M. Nuclear Gas Turbine Power Plant Activities in the United States (77-JPGC-GT-5) (A) **Mr 93**

Krattel, E. R. *(author)* Introduction to Modern Sheet Metal (CB) **D 96**

Krause, H. H. Erosion-Corrosion Effects on Boiler Tube Metals in a Multisolids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**

Kreid, D. Analysis of Advanced Compressed Air Energy Storage Concepts (78-HT-53) (A) **O 97**

Kreid, D. K. Approximate Analysis of Heat Transfer from the Surface of a Wet Finned Heat Exchanger (78-HT-26) (A) **O 94**

Kreith, F. Disk Pump Performance in Turbulent Flow (77-WA/FE-26) (A) **Ap 96**

Krempl, E. A Linear Uniaxial Damage Accumulation Law for Creep-Fatigue Interaction (78-PVP-63) (A) **N 119**

Kretschmer, D. A Simple Method for the Prediction of Wall Temperatures in Gas Turbines (78-GT-90) (A) **Ag 90**

Krey, G. Bypass Control of Closed-Cycle Gas Turbines (78-GT-70) (A) **Ji 96**

Kring, G. The Spacelab Flight Unit Environmental Control/Life Support System (78-ENAs-14) (A) **N 111**

Krishna, M. B. Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) (A) **Je 103**

Krishnamurthy, R. On the Surface Durability of Gears (77-DET-58) (A) **Ja 113**

Kroft, T. L. *(author)* Technical Report Standards: How To Prepare and Write Effective Technical Reports (CB) **D 96**

Krulis, G. E. A Combined System of Fuel Washing Involving Both Centrifuges and Electrostatic Separators—A Hybrid (78-GT-130) (A) **Ag 112**

Kruse, A. Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) (A) **Ja 112**

Krutz, G. W. Application of the Finite Element Method to the Inverse Heat Conduction Problems (77-WA/TM-4) (A) **My 96**

Krykaman, C. Registration (C) **Ja 51**

Ku, P. M. Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) (A) **Mr 86**

Ku, S. C. The Prospects for Lightweight Ship Propulsion Systems (78-GT-179) (A) **S 74**

Kubanek, G. R. Evaporative Heat Transfer and Pressure Drop Performance of Internally-Finned Tubes with Refrigerant 22 (77-WA/HT-25) (A) **Ap 104**

Kubo, A. Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) (A) **Ja 114**

Kuehn, L. A. Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) (A) **Ap 98**

Kuta, E. B. Heat Treatment, Structure, and Properties of Standard and Modified Vasco X-2 Carburizing Grade Gear Steels (77-DET-151) (A) **F 129**

Kumagai, T. Film Cooling Effectiveness for Injection from Multirow Holes (78-GT-32) (A) **Ji 90**

Kumar, S. S. Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) (A) **Je 106**

Kumar, V. Dynamic Analysis of Piping Systems Using

Substructures (77-DET-144) (A) **F 128**

Kue, S. C. Alternative Closed-Cycle Gas Turbine System Design Considerations for Ship Propulsion Applications (78-GT-18) (A) **Ji 89**

Kurajian, G. M. An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) (A) **Mr 94**; On Elasto-Plastic Column Design (77-WA/DE-17) (A) **Mr 95**

Kure-Jensen, J. Designing for Reliability the Large Steam Turbine Mark II Control System (77-JPGC-Pwr-4) (A) **Mr 88**

Kurihara, M. Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) (A) **Ja 114**

Kurihara, N. Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) (A) **Ja 114**

Kurita, Y. Shear Fracture Propagation by DCB Testing (77-Pet-32) (A) **Ja 101**

Kurkov, A. Synthesis of Blade Flutter Vibratory Patterns Using Stationary Transducers (78-GT-160) (A) **Ag 116**

Kuroda, S. Operating Experience and Advanced Technique in Liquid Radwaste Processing (77-JPGC-NE-17) (A) **Mr 91**

Kvemeland, K. O. *(author)* World Metrics Standards for Engineering (CB) **D 96**

L

La Croix, A. Phenix Plant Operation and Maintenance Experience (78-JPGC-NE-2) (A) **D 84**

La Rosa, J. A. Long Arc Shrouding—A Reliability Improvement for Untuned Steam Turbine Blading (77-JPGC-Pwr-12) (A) **Mr 89**

La Rosa, R. Improving Organizational Cross-Links (C) **Ag 49**; Of Utility Rates and Free Lunches (C) **Ap 46**; Wind Power (C) **Ja 50**

Laboratory Exercises
The Use of Gas Turbine Laboratories in Teaching Engineering and Non-Engineering Students (78-GT-180) (A) **S 75**

Laboratory Requirements
Requirements for Educational Gas Turbines (78-GT-76) (A) **Ag 105**

Laboratory Simulation
Load Sequences for Laboratory Simulation of Flight-by-Flight Stress Spectra (77-WA/DE-25) (A) **Mr 98**

Laboratory Test Facility
Slagging and Fouling Properties of Coal Ash Deposits as Determined in a Laboratory Test Facility (77-WA/Fu-6) (A) **My 93**

Labra, J. J. Application of a Finite Element Computer Program for Investigating Failure Mechanisms in Military Ammunition (77-WA/DE-20) (A) **Mr 96**; No Chance at "War and Peace" (C) **Je 51**

Lachetta, F. A. Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) (A) **My 97**

LaForce, C. H. J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) (A) **O 99**

Lahoti, G. D. Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) (A) **Je 107**; A Numerical Method for Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) (A) **Je 107**

Laithwaite, E. R. *(editor)* Transport Without Wheels (CB) **Je 114**

Lakshminarayana, B. An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) (A) **Ag 109**

Lakshminarayana, K. Mechanics of Form Closure (78-DET-32) (A) **D 90**

Lam, P. Decoupling of Undamped Vibration System (77-PVP-7) (A) **Ja 108**

Lamarre, G. Mechanical Reliability Confidence Limits (77-WA/DE-12) (A) **Mr 94**

Lamba, H. S. Cyclic Plasticity for Non-proportional Paths: Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) (A) **Je 110**

Lambright, W. H. The Impact of the Presidency on Technology: The Case of Nuclear Energy **Je 20**

Laminar Boundary Layers
Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**

Laminar, Transitional, and/or Turbulent Three-Dimensional Boundary Layers over Arbitrary Blunt-Nosed Bodies Including Surface Curvature Effects (78-HT-23) (A) **O 94**

Stabilizing and Destabilizing Effects of Coriolis Force on Two-Dimensional Laminar and Turbulent Boundary Layers (78-GT-1) (A) **Ji 87**

Laminar Flow
Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (77-WA/HT-4) (A) **Ap 101**

Laminar Orifice Flow
Numerical Solutions for Laminar Orifice Flow (77-WA/FE-13) (A) **Ap 95**

Laminar Shear Layer
Laminar Shear Layer Due to a Semi-Infinite Thin Flat Plate Oscillating with Zero Mean Velocity (77-WA/FE-16) (A) **Ap 95**

Laminated Composites
Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) (A) **Ap 101**

Laminated Plates
Buckling of Rectangular Cross-Ply Laminated Plates with Nonlinear Stress-Strain Behavior (78-PVP-64) (A) **N 119**

A High-Order Theory of Plate Deformation—Part 2: Laminated Plates (77-WA/APM-24) (A) **Ji 98**

Laminated Structures
The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) (A) **Je 108**

Lamping, G. Controlled Reluctance Eddy Current Inspection of Steam Turbine Blades (78-JPGC-Pwr-6) (A) **D 83**

Lancey, T. W. Quiet Vent Valve Design and Airborne Noise Spectra (77-WA/Flcs-12) (A) **Ap 98**

Land Based Test Site
USS Oliver Hazard Perry (FFG-7) Guided Missile Frigate Propulsion System Land Based Test Site Operational Experience (78-GT-150) (A) **Ag 115**

Land Use Policy
Public Transportation and Land Use Policy (CB) **Ja 117**

Landes, J. D. Elastic-Plastic R-Curves (78-Mat-12) (A) **O 99**

Lane, D. F. Improving Productivity in the Third Century (77-WA/Mgt-2) (A) **My 96**; Improving U.S. Productivity: Part 1—Organizing for Increasing Productivity **S 25**; Part 2—How to Improve Management-Employee Relationships **O 30**; Part 3—Methodologies for Boosting Productivity **N 47**

Lane, R. K. Alternate Fuel Cycles in HTGR's (77-JPGC-NE-26) (A) **Mr 92**

Lane, W. R. Factors Detrimental to Electrostatic Precipitator Performance (77-WA/APC-7) (A) **My 101**

Lang, R. P. The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) (A) **Ag 113**

Lapeyre, P. A. Tackling Taxing Problems (C) **N 56**

Large Leak Test Rig (LLTR)
Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) (A) **Mr 90**

Larsen, D. C. Strength Characterization of Various Silicon Base Turbine Materials (77-WA/GT-4) (A) **Ap 100**

Laser Beams
Applications of Inertial Confinement Fusion (BTR) **Ji 49**
The Moon Through a Fly's Eye (BTR) **Ji 46**
Rear Surface Noncontact Measurements of Laser Target Temperatures (78-HT-58) (A) **O 98**

Laser Energy
Thermal Stress Effects and Surface Cracking Associated with Laser Use on Human Teeth (77-WA/HT-43) (A) **My 100**

Laser Flow Measurement
Laser Flow Measurement (77-WA/FM-2) (A) **Ap 100**

Laser Guns
Laser Guns "Fired" in Anti-Terrorist Exercises (BTR) **N 59**

Laser Holography
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) (A) **Ag 110**

Laser Irradiation
Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation (77-WA/HT-45) (A) **My 100**

Laser Measurements
California Welcomes Conference on Pneumatic Handling (NR) **My 69**

Laser Use
Thermal Stress Effects and Surface Cracking Associated With Laser Use on Human Teeth (77-WA/Bio-3) (A) **Mr 97**

Laser Weapon System
Deadly Precision with Laser Weapon System (BTR) **N 63**

Lasers
Convert Laser Power to Electrical Power (BTR) **Je 59**
Dual Laser Welding System (BTR) **Ap 48**
Health-Related Uses of Lasers (BTR) **Ag 56**
Heat Pipe Mirrors for High Power Lasers (78-HT-60) (A) **O 98**
High-Power Laser (BTR) **F 53**
Laser Precision in Turbine Construction (IF) **Ji 54**
Of Lasers, Fusion, and Sun Power (ES) **O 47**
Thermal-Acoustical Phenomena in Pulsed High-Energy Lasers (78-HT-61) (A) **O 98**
What Designers Should Know About Laser Welding and Cutting **Je 44**

Lateral Bending Wave
Peristaltic Pumping by a Lateral Bending Wave (77-WA/Bio-12) (A) **Ap 99**

Lateral Dynamic Analysis
Wheelset Lateral Dynamic Analysis Using the Describing Function Technique (77-DET-149) (A) **F 129**

Lateral Mechanical Response
Non-Linear Lateral Mechanical Response of Pressurized Water Reactor Fuel Assemblies (77-WA/DE-18) (A) **Mr 95**

Lateral Response
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) (A) **Ja 113**

Lateral Stability
High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) (A) **Mr 84**
Lateral Stability of Freight Cars With Axles Having Different Wheel Profiles and Asymmetric Loading (78-RT-3) (A) **O 90**

Latham, R. F. The Use of Gas Turbine Laboratories in Teaching Engineering and Non-Engineering Students (78-GT-180) (A) **S 75**

Lathes
Automatic Armature Lathe (IF) **My 65**

Latinovic, V. Optimal Design of Multi-Edge Cutting Tools for BTA Deep-Hole Machining (78-DET-66) (A) **D 94**

Lattice Contact
Lattice Contact in Generated Spiral Bevel Gears (77-DET-63) (A) **Ja 113**

Laura, A. A. On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) (A) **Mr 93**

Laura, P. A. A. Vibrations of Beams and Plates with Edges Elastically Restrained Against Rotation Carrying Elastically Mounted Masses (77-DET-87) (A) **F 122**

Laurendeau, N. M. Optical Property Measurements for Suspensions of Unicellular Algae (78-HT-14) (A) **O 93**

Lavasseur, A. A. Slagging and Fouling Properties of Coal Ash Deposits as Determined in A Laboratory Test Facility (77-WA/Fu-6) (A) **My 93**

Law, E. H. Lateral Stability of Freight Cars With Axles Having Different Wheel Profiles and Asymmetric Loading (78-RT-3) (A) **O 90**

Lawrence, R. J. The Effect of Material Constitutive Models on Stress Wave Propagation Calculations (77-WA/Mat-8) (A) **Je 109**

Lawrence, W. P. Crossflow-Induced Vibration of a Row of Circular Cylinders in Water (77-JPGC-NE-4) (A) **Mr 90**

Lawrie, W. E. Advances in Ultrasonics for Inservice Inspection (78-PVP-39) (A) **N 117**

Lawton, R. G. Downhole Measurements of Thermal Conductivity in Geothermal Reservoirs (77-Pet-23) (A) **Ja 100**

Layered Composites
On Harmonic Waves in Layered Composites (77-WA/APM-30) (A) **Ji 99**

Lazalier, C. R. A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) (A) **Ag 109**

Le May, I. On the Minimum-Commitment Method for Correlation of Creep-Rupture Data (78-Mat-18) (A) **O 100**; On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments

(78-Mat-1) (A) **O 98**

Leaching
Uranium Solution Mining—State of the Art (77-Pet-47) (A) **Ja 103**

Lead-Acid Batteries
Heat Transfer in Lead-Acid Batteries (78-HT-52) (A) **O 97**

Leading Edge Bubble Separation
Dynamic Stall of An Airfoil with Leading Edge Bubble Separation Involving Time Dependent Re-Attachment (78-GT-194) (A) **S 76**

Leak Injection Devices
Development Testing of Leak Injection Devices for Use in Testing Sodium-Water Leak Detection Modules (77-JPGC-NE-7) (A) **Mr 90**

Leak Protection System
Development of LMFBR Steam Generator Leak Protection Systems (77-WA/NE-12) (A) **Je 102**

Leak Test Rig
Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) (A) **Mr 90**

Leak-Tight Operation
Sealing Forces for Leak-Tight Operation of a Self-Energized Pressure Vessel Closure (78-PVP-16) (A) **O 103**

Leakage Effects
A Network Approach to Brake Pipe Leakage (77-WA/Fcs-10) (A) **Ap 97**

Leakage Loss
Effects of Fluid Leakage on Performance of a Centrifugal Compressor (78-GT-143) (A) **Ag 614**

Leakage Reduction
Study of Bolted Joint Integrity and Inter-Tube-Pass Leakage in U-Tube Heat Exchangers—Part II: Applications (77-WA/NE-7) (A) **Je 100**

Learning Modules
Socio-Technical Project (EN) **My 74**

Least Squares Methods
On Certain Least-Squares Synthesis Methods Misconceptions (78-DET-11) (A) **D 88**

Lebeck, A. O. Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) (A) **Mr 86**

Ledford, O. C. An Experiment Cooling Loop for Spacelab Payloads (78-ENAs-29) (A) **N 113**

Lee, D. E. Special Engineering Problems of TFTR (77-WA/NE-4) (A) **Je 100**

Lee, D. O. Tracking and Shadowing Models for Solar Collection Systems (77-WA/Sol-8) (A) **My 97**

Lee, D. S. On the Thermal Effects in a Wrap Beam (A Wound-Yam-Package) (77-Tex-3) (A) **F 132**

Lee, F. F. M. Review of Wear Problems in the Computer Industry (77-Lub-4) (A) **F 132**

Lee, I-P. J. Dynamic Analysis of Spatial Mechanisms Using Fuel Successive Screw Method and D'Alembert's Principle (78-DET-22) (A) **D 90**

Lee, K. Y. Stress Response Investigations Related to In-Situ Gasification of Coal (77-Pet-25) (A) **Ja 101**

Lee, L. H. N. Quasi-Bifurcation in Dynamics of Elastic-Plastic Continua (77-WA/APM-3) (A) **Je 111**

Lee, M. K. Water Electrolysis System: H_2 and O_2 Generation (78-ENAs-3) (A) **N 110**

Lee, N.-Y. Radiant Exchange for a Fin and Tube Solar Collector (78-HT-33) (A) **O 96**

Lee, T. W. On the Kinematic and Dynamic Synthesis of a Variable-Speed Drive (77-DET-124) (A) **F 128**; Weight Minimization of a Speed Reducer (77-DET-163) (A) **F 130**

Lee, Y. J. An Experimental Evaluation of the Flow Distribution in the CRBRP Modular Steam Generator (77-JPGC-NE-12) (A) **Mr 91**

Laemhuis, R. S. Vector Loop Analysis of Wankel Compressors or Engines (78-DET-1) (A) **D 87**

Lees, A. W. Torsional Vibrations of a Boiler Feed Pump (77-DET-28) (A) **Ja 110**

Lefebvre, A. H. Weak Extinction Limits of Turbulent Flowing Mixtures (78-GT-144) (A) **Ag 114**

Left Ventricular Function
Left Ventricular Area Ratios: Comparison of the Circumferential and Longitudinal Directions and Correlation with Left Ventricular Function (77-WA/Bio-11) (A) **Ap 99**

Leg Muscle Forces
Determining Muscle Forces in the Leg During Normal Human Gait—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) (A) **Ap 98**

Legal Function
The Protection of Intellectual Property—A Design Function (77-DET-111) (A) **F 125**

Legal Technicalities
The Attorney: A Role in Commercial Contracting (77-IPC-1) (A) **F 133**

Legislation
An Analysis of ERDA's National Energy Plan (77-WA/TS-2) (A) **My 98**
ASME Aids State Lawmakers (NR) **F 65**
Atomic Issues (Cont'd.) (C) **Ag 50**
EEI on Supreme Court Decision (ES) **Je 19**
How to Write a Letter to Your Congressman (PS) **My 79**
IEEE Talks Capital Gains (NB) **Ag 75**
More on Price-Anderson (C) **S 46**
Pension Legislation: How You Can Help **Mr 74**
Social Security Tax Increases Represent Less Change than Public Led to Believe (PS) **Jl 67**

Legislative Policy
NSPE Political Action Committee (NR) **Je 74**

Lehners, H. Registration: Why Fight It? (C) **O 45**; Professional Education (C) **N 58**

Leibowitz, H. M. An Experimental Evaluation of a Single-Stage Water-Cooled Gas Turbine (77-JPGC-GT-2) (A) **Mr 92**

Leidenfrost, W. Experiments on the Role of Natural Convection and Heat Source Arrangement in the Melting of a Solid (78-HT-47) (A) **O 97**

Lemaitre, J. Application of Damage Concepts to Predict Creep-Fatigue Failures (78-PVP-26) (A) **O 104**

Leman, J. D. Maintenance Experience with Sodium Systems at Experimental Breeder Reactor II (EBR-II) (78-JPGC-NE-5) (A) **D 84**

Lenk, J. D. *(author)* Handbook of Simplified Solid-State Circuit Design (CB) **Ag 119**

Lenox, J. B. Accurately Characterizing a Measured Change in Configuration (78-DET-50) (A) **D 93**

Lenox, T. G. Full Authority Digital Electronic Control—Highlights of Next Generation Propulsion Control Technology (78-GT-165) (A) **Ag 116**

Lenses
The Eyes Have It (BTR) **Ja 63**

Lentz, J. S. Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) (A) **Ja 101**

Lenz, E. Optimal Edge Geometry for Maximum Tool Life (77-WA/Prod-43) (A) **Je 108**

Leohrke, R. I. A Passive Technique for Enhancing Thermal Stratification in Liquid Storage Tanks (78-HT-50) (A) **O 97**

Lesso, W. G. Optimum Development of Offshore Oilfield Operations (77-Pet-50) (A) **Ja 103**

Lester, R. H. *(author)* Quality Control for Profit (CB) **Ap 107**; (C) **Je 113**

Leung, P. Power System Economics: On Evaluation of Availability (78-JPGC-Pwr-3) (A) **D 82**; On Selection of Engineering Alternatives (77-JPGC-Pwr-7) (A) **Mr 88**

LeVert, F. E. Dynamic Analysis of a High-Speed Electrohydraulic Transient Rod Drive System (77-WA/Fcs-8) (A) **Ap 97**

Levesque, R. G. Experience with Cement Usage as the Binding Agent for Radwaste (78-NE-15) (A) **N 115**

Levi, R. Machining Economics and Tool Life Variation: Part 1—Basic Considerations and their Practical Implications (77-WA/Prod-12) (A) **Je 104**

Lewis, C. H. Laminar, Transitional, and/or Turbulent Three-Dimensional Boundary Layers over Arbitrary Blunt-Nosed Bodies Including Surface Curvature Effects (78-HT-23) (A) **O 94**

Lewis, J. Technical and Objectives for the Development of Advanced Combined Cycles for Use with Coal-Derived Fuels (78-GT-101) (A) **Ag 108**

Lewis, O. L. ASME Convocation Points to New Directions (Ed) **O 19**; Communication (Ed) **D 13**; Last (And Only) Word On Energy (Ed) **S 19**; Looking at Tomorrow (Ed) **Ag 21**; Modest Goals, Strong Traditions, High Hopes (Ed) **Jl 17**; WAM '78—We Have Met the Future—It is Ours (Ed) **N 19**

Lewis, R. I. Teaching of the Fluid Mechanics of Turbomachines (78-GT-161) (A) **Ag 116**

Li, C. H. The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) (A) **F 133**

Libai, A. Buckling of Cylindrical Shells Subjected to Nonuniform Axial Loads (77-WA/APM-12) (A) **Jl 97**

Liber, T. Three High-Pressure Component Failures (78-Mat-3) (A) **O 98**

Libertiny, G. Z. Employer's Expectation of Test Engineers (77-WA/DE-29) (A) **Mr 96**

Librizzi, F. P. Outage Factors—An Aid to Analyzing Electric Generating Unit Reliability (77-JPGC-Pwr-9) (A) **Mr 88**

Liburdy, J. A. Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along Vertical Isothermal Wall (77-WA/HT-30) (A) **Ap 104**; Structure of a Turbulent Thermal Plume Rising Along an Isothermal Wall (78-HT-24) (A) **O 94**

License Guide
Professional Engineer's License Guide (CB) **N 126**

Licensing Procedure
Nuclear Licensing Delays (ES) **My 21**

Licht, H. Pre-service and In-service Inspection-Research and Development in Support of the Canadian Nuclear Power Program (78-PVP-23) (A) **O 104**

Life Insurance Plan
More Insurance Now Available for Members **D 77**

Life Sciences Experiments
The European Life Sciences Experiments on Board the First Spacelab Mission (78-ENAs-24) (A) **N 112**
Life Sciences Experiments in the First Spacelab Mission (78-ENAs-26) (A) **N 113**
Life Sciences Experiments Mission Development Test Program (78-ENAs-36) (A) **N 114**
Life Sciences in the Shuttle Era (78-ENAs-34) (A) **N 114**

Life-Support Device
Decometer: A Microprocessor-Based Decompression Computer for Divers (77-WA/Oce-8) (A) **Ap 93**

Life Support Systems
Challenges to Life Support System's Future (78-ENAs-28) (A) **N 113**
Extended Duration Orbiter Life Support Definition (78-ENAs-42) (A) **D 87**
Extended Duration Orbiter Life Support System Options (78-ENAs-31) (A) **N 113**
Instrumentation for Controlling and Monitoring Environmental Control and Life Support Systems (78-ENAs-40) (A) **D 87**
Life Support Systems for Biological Specimens in the Shuttle/Spacelab (78-ENAs-38) (A) **N 114**
The Spacelab Flight Unit Environmental Control/Life Support System (78-ENAs-14) (A) **N 111**
Test Evaluation of Space Station ECLSS Maintenance Concepts (78-ENAs-43) (A) **D 87**

LIFE Transient Codes
Application of LIFE Transient Codes to Experiment and Core Design (78-PVP-51) (A) **N 118**

Lightwave Communications
Lightwave Communications (BTR) **Ap 57**

Lightweight Ship Propulsion Systems
The Prospects for Lightweight Ship Propulsion Systems (78-GT-179) (A) **S 74**

Lignite
The Influence of Drying and Stress on the Permeability of Texas Lignite (77-Pet-26) (A) **Ja 101**

Lilleleht, L. U. Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) (A) **My 97**

Limit Analysis
Limit Analysis of Hollow Disk Forging Part 1: Upper Bound (77-WA/Prod-2) (A) **My 103**; Part 2: Lower Bound (77-WA/Prod-3) (A) **My 103**

Limit Positions
Limit Positions of Spatial Linkages via Connectivity Sum Reduction (78-DET-12) (A) **D 88**

Lin, C. W. OBE Design Effects on Nuclear Power Plant Pressure Vessel (78-PVP-14) (A) **O 103**

Lindner, R. Acoustic Radiation from a Venturi Type Flowmeter Due to Hydrodynamic Excitation (LWBR Development Program) (77-DET-165) (A) **F 130**

Line Contact
Thermoelastic Effects in Frictionally Heated Line Contact of Slab Like Bodies (77-Lub-21) (A) **Mr 86**

Line Elements
Determination of the Critical Operating Speeds of Planar Mechanisms by the Finite Element Method Using Planar Actual Line Elements and Lumped Mass Systems (78-DET-37) (A) **D 91**

Line Pipe
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) (A) **O 101**

Line Pitting
An Experimental and Theoretical Study of the Effects of Simulated Pitch Line Pitting on the Vibration of a Geared System (77-DET-123) (A) **F 126**

Line-Symmetric Four Bars
A Compendium of Line-Symmetric Four-Bars (78-DET-14) (A) **D 89**

Line Visualization
Real-Time Force Line Visualization: Bioengineering Ap-

plications (77-WA/Bio-6) (A) **Mr 97**

Linear Anisotropic Scattering
Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) (A) **O 94**

Linear Continuous Extrusion
Theory of Linear Continuous Extrusion Linex (77-WA/Prod-17) (A) **Je 105**

Linear Control Algorithms
Microcomputer Implementation of Direct Digital Control Algorithms for Thermal Process Control Applications (77-WA/Aut-4) (A) **Je 102**

Linear Control Theory
Flank Wear Model of Cutting Tools Using Control Theory (77-WA/Prod-20) (A) **Je 605**

Linear Depth Taper
Transverse Vibrations of Cantilever Beams Having Unequal Breadth and Depth Tapers (77-WA/APM-19) (A) **Ji 98**

Linear Elastic Fracture Mechanics
Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) (A) **O 99**

Linear Identification
Deterministic Disturbance Rejection in Linear Identification (77-WA/Aut-1) (A) **Je 102**

Linear Programming
Managerial Planning with Linear Programming in Process Industry Operations (CB) **D 96**
An Optimization Strategy for Control of SO_x from Coal-Fired Power Plants (77-JPGC-Pwr-16) (A) **Mr 89**

Linear Servo Motors
Pattern Control Actuator Design for Electronically Controlled Sewing Machine (78-DE-13) (A) **S 74**

Linear Stability
Linear Stability of Jet Flows (77-WA/APM-10) (A) **Je 111**

Linear Time Delayed Systems
The Regeneration Spectrum—A New Tool for the Stability Analysis of a Class of Linear Time Delayed Systems (77-WA/Aut-9) (A) **Je 103**

Linear Vibration Analysis
Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) (A) **Mr 85**

Linkage Synthesis
Joint Displacements in Linkage Synthesis Solutions (78-DET-43) (A) **D 92**

Linkages
Chebychev Approximations of Finite Point Sets with Application of Planar Kinematic Synthesis (78-DET-25) (A) **D 90**
A Closed-Form Numerical Algorithm for the Periodic Response of High-Speed Elastic Linkages (78-DET-15) (A) **D 89**
A Compendium of Line-Symmetric Four-Bars (78-DET-14) (A) **D 89**
A Computationally Efficient Numerical Algorithm for the Transient Response of High-Speed Elastic Linkages (78-DET-54) (A) **D 93**
Computer-Aided Synthesis of a Two-Degree-of-Freedom Planar Linkage for Function Generation (78-DET-30) (A) **D 90**
Displacement Analysis of RRGRR Mechanism (78-DET-8) (A) **D 88**
The Elastic-Dynamic Behavior of a Counterweighted Rocker Link with an Overhanging Endmass in a Four-Bar Linkage Part I: Theory (78-DET-23) (A) **D 90**; Part II: Application and Experiment (78-DET-24) (A) **D 90**
Limit Positions of Spatial Linkages via Connectivity Sum Reduction (78-DET-12) (A) **D 88**
Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) (A) **Mr 94**
Multiparametric Optimization of Four-Bar Linkages (78-DET-7) (A) **D 87**
Optimization of Crank-and-Rocker Linkages with Size and Transmission Constraints (78-DET-6) (A) **D 87**
Performance Criteria for High-Speed Crank-and-Rocker Linkages Part I: Plane Crank-and-Rocker Linkages (78-DET-33) (A) **D 90**; Part II: Spherical Crank-and-Rocker Linkages (78-DET-34) (A) **D 91**
Rapid Algorithms for Kinematic and Dynamic Analysis of Planar Rigid Linkages with Revolute Joints (78-DET-64) (A) **D 94**
Synthesis of the Four-bar Mechanisms for the Generation of Symmetrical "V" Shaped Coupler Curves of Specified Flank Angles for Linkage-Geneva Mechanisms (78-DET-52) (A) **D 91**
Technology Transfer in the Design of Adjustable Linkages (78-DET-67) (A) **D 94**
Lionberger, S. R. Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) (A) **Ja 114**

Liquefied Natural Gas
Improved LNG Semi Trailer Design (77-Pet-57) (A) **Je 104**
LNG is Safe (ES) **Mr 19**
New Gas Liquefaction Project (IF) **Ap 65**
Offshore Gas Liquefaction (IF) **F 63**
The Offshore LNG Facility—1977 Status Review (77-Pet-83) (A) **Ja 107**
Operating Experience with the Gas Turbine Powered LNG/Ethylene Carrier "Lucian" (78-GT-35) (A) **Ji 91**

Liquid Coal
A Hard Look at Liquid Coal (ES) **Ag 23**

Liquid Cooling Garment
Dry-Ice, Liquid-Pulse-Pump, Portable Cooling System (78-ENAs-41) (A) **D 87**

Liquid Cross Flow
Dynamic Response of a Circular Cylinder Subjected to Liquid Cross Flow (78-PVP-15) (A) **O 103**

Liquid Face Seals
Phase Change in Liquid Face Seals (77-Lub-12) (A) **Mr 85**

Liquid-Filled Piping Systems
Response of Water-Filled Thin-Walled Pipes to Pressure Pulses: Experiments and Analysis (78-PVP-53) (A) **N 117**

Liquid Films
Experimental Study of Evaporation and Breakdown of Thin Liquid Films Driven by Shear Stresses (77-WA/HT-7) (A) **Ap 102**

Liquid Fuels
Demonstration at Con Ed (ES) **D 15**
Grid Connected Electrical-Thermal (Cogeneration) Energy System for University of California, Davis, California (78-GT-134) (A) **Ag 112**
Investigating Combustion Turbine Burner Performance with Coal Derived Liquids Having High Bound Nitrogen (78-GT-126) (A) **Ag 111**
New Horizons for Methanol (ES) **O 46**
Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal (77-WA/Ener-9) (A) **My 94**

Liquid Gas Pump
Submersible Motor Pump (IF) **Je 64**

Liquid Helium
The Development of a Large-Diameter Rotating Helium Rig (77-WA/HT-38) (A) **My 99**
The Development of a Rotating Liquid Helium Flow Circuit (77-WA/HT-37) (A) **My 99**

Liquid-Junction Cells
Liquid/Solid Solar Cells (BTR) **My 57**

Liquid Lenses
Inexpensive High-Temperature Solar Collector (BTR) **Mr 49**

Liquid Metal Breeder
United States Uranium Position (77-JPGC-NE-25) (A) **Mr 92**

Liquid Metal Fast Breeder
An Alternative to the LMFBR? (ES) **F 27**

Liquid Metal Heat Pipe
Liquid Metal Heat Pipe Performance in the Presence of a Transverse Magnetic Field (78-ENAs-20) (A) **N 112**

Liquid Metal Piping
Stress Analysis for the Design of Liquid Metal Piping in the Design of Liquid Metal Piping in the Fast Flux Test Facility (78-PVP-21) (A) **O 103**

Liquid Natural Gas
The Internally Insulated Liquid Natural Gas Pipeline for Arctic Gas Recovery (77-WA/HT-17) (A) **Ap 103**

Liquid Oil
Underground Combustion: Shale to Liquid Oil (BTR) **Ap 58**

Liquid Oscillators
Column Separation as a Feedback Mechanism in Liquid Oscillators (77-WA/Fics-4) (A) **Ap 96**

Liquid Radioactive Waste
An Evaluation of Liquid Radioactive Waste Treatment Systems for CANDU-PHW (78-JPGC-NE-17) (A) **D 86**
An Evaluation of New Filter/Demineralizer Precoat Materials (78-JPGC-NE-16) (A) **D 86**

Liquid Radwaste Processing
Operating Experience and Advanced Technique in Liquid Radwaste Processing (77-JPGC-NE-17) (A) **Mr 91**

Liquid Storage Tanks
A Passive Technique for Enhancing Thermal Stratification in Liquid Storage Tanks (78-HT-50) (A) **O 97**

Liquids
Conversion of Gas Pipeline to Liquids Service (77-Pet-18) (A) **Ja 100**
Steam Tables: Thermodynamic Properties of Water Including Vapor, Liquid, and Solid Phases (CB) **N 127**
Lister, D. H. Measurement of Emissions Variability of a Large Turbofan Aero-Engine (78-GT-75) (A) **Ag 105**

Lithium Batteries
Rechargeable, High-Energy Lithium Battery (BTR) **Je 58**

Lithium Hydroxide
The Dependence of the CO_2 Removal Efficiency of LiOH on Humidity and Mesh Size (78-ENAs-5) (A) **N 110**

Lithium Pacemaker
Long-Life Lithium Pacemaker (IF) **F 63**
Litvin, F. L. An Analysis of Undercut Conditions and of Appearance of Contact Lines Envelope Conditions of Gears (77-DET-2) (A) **Ja 108**
Litz, D. C. A Pulsed Homopolar Machine with Superconducting Field Coils (77-WA/HT-35) (A) **My 99**
Liu, C. H. Critical Steady-State Heat Fluxes Causing Melting or Evaporation of the Anode in a High Intensity Arc (78-HT-10) (A) **O 93**; Heat Transfer in the Anode Region of High Intensity Arcs (78-HT-9) (A) **O 93**
Lo, H. Dynamic Response of a High-Pressure Steam Pipe in a Fossil Fuel Power Plant (78-PVP-75) (A) **N 120**
Lo, K. H. A High-Order Theory of Plate Deformation—Part 1: Homogeneous Plates (77-WA/APM-23) (A) **Ji 98**; Part 2: Laminated Plates (77-WA/APM-24) (A) **Ji 98**

Load Capacity Calculation
Advanced Industrial Turbine Gear Calculation Methods (78-GT-174) (A) **S 74**
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) (A) **Mr 87**

Load Compressors
Requirements for Educational Gas Turbines (78-GT-76) (A) **Ag 105**

Load Conditions
Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) (A) **Mr 85**

Load Cycles
Low-Cycle Fatigue and Ultimate Strength Related to Gear Design (77-DET-66) (A) **Ja 113**

Load Data
Summarization and Comparison of Freight Car Truck Load Data (77-WA/RT-3) (A) **Mr 84**

Load Distribution
Load Distribution in Timing Belts (77-DET-100) (A) **F 124**

Load-Life Relation
Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) (A) **F 126**

Load Sequences
Load Sequences for Laboratory Simulation of Flight-by-Flight Stress Spectra (77-WA/DE-25) (A) **Mr 96**

Load Simulators
Design of a Load Simulator for the Dynamic Evaluation of Prosthetic Knee Joints (78-DET-59) (A) **D 94**

Load Stresses
Thermal Damage and Rail Load Stresses in a 33-In. Railroad Car Wheel (77-WA/RT-2) (A) **Mr 84**

Load Tests
Full Load Tests of the 80-MW Gas Turbine V 93.2 Using a Water Brake (78-GT-68) (A) **Ji 95**

Loaded Gears
Rotational Vibration With Backlash: Part 1 (77-DET-105) (A) **F 124**

Loading
Analysis of Closely Spaced Double Tubesheets Under Mechanical and Thermal Loadings (77-JPGC-NE-21) (A) **Mr 92**
Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) (A) **O 102**
Bending Fatigue Strength of Gear Teeth under Random Loading (77-DET-120) (A) **F 126**
Characteristics of a Novel Pneumatic Stepping Motor (77-WA/Fics-7) (A) **Ap 97**
Control of Clearance Effects (77-WA/DE-2) (A) **Mr 93**
Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) (A) **O 99**
Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) (A) **Je 110**
Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) (A) **Je 106**
Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**
The Effect of Material Constitutive Models on Stress Wave

Propagation Calculations (77-WA/Mat-8) (A) **Je 109**
Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) (A) **Ja 115**
Fatigue Crack Growth Model for Part-Through Flaws in Plates and Pipes (78-Mat-9) (A) **O 99**
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) (A) **Ap 92**
Inelastic Stress Distribution in Tubesheet Ligaments Under Thermal and Mechanical Loading (77-JPGC-NE-22) (A) **Mr 91**
Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) (A) **Jl 88**
Lateral Stability of Freight Cars With Axles Having Different Wheel Profiles and Asymmetric Loading (78-RT-3) (A) **O 90**
Locating Pipe Supports for Combined Thermal and Seismic Loading (77-PVP-63) (A) **Ja 108**
Machine Loading and Product-Mix Analysis for Group Technology (77-WA/Prod-19) (A) **Je 105**
A model for Axial Splitting Under Uniaxial Compression (77-Pet-73) (A) **Ja 106**
Pallet Loader Boosts Productivity (BTR) **Ag 58**
Safety Margin of Containment of Structures Under Impulsive Loading (78-PVP-68) (A) **N 120**
Stresses in Turbine Blades Due to Temperature and Load Variation (78-GT-158) (A) **Ag 115**

Loading Conditions
Influence of Static and Dynamics Asymmetric Loading Conditions on Silo Design (77-DET-145) (A) **F 128**

Loading Mechanisms
Loading Mechanisms in Thawed Permafrost Around Arctic Wells (77-Pet-22) (A) **Ja 100**

Loads
Buckling of Cylindrical Shells Subjected to Nonuniform Axial Loads (77-WA/APM-12) (A) **Jl 97**
Computer Code for Predicting the Dynamic Response of High Energy Piping, Pressure Vessels, and Shell Structures Subjected to Transient Loads and Impacts (78-PVP-33) (A) **N 116**
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Radio (77-DET-68) (A) **Ja 113**
Rapid Positive Load Changes by Gas Injection in Closed Gas Turbine Cycles (78-GT-8) (A) **Jl 87**
Transient Response of Thin, Thick, or Sandwich Shells and Pressure Vessels Subjected to Transient Loads (78-PVP-35) (A) **N 116**

Loan Program
Loan Fund for Women in Engineering Studies (EN) **Mr 66**

Lobster's Arm
Displacement Analysis of a Spatial 7R Mechanism—A Generalized Lobster's Arm (78-DET-10) (A) **D 89**

Local Stress Relieving
Feasibility of Local Stress Relieving Close to Main Shell of a Large Vessel (78-NE-2) (A) **N 114**

Locomotive Engineers
Train Dynamics Analyzer: A Training Simulator for Locomotive Engineers (77-WA/RT-10) (A) **Mr 85**

Locomotive Truck
Hunting Stability of the Three-Axle Locomotive Truck (78-RT-6) (A) **O 91**

Locomotive Wheels
Braking Duty in North American Freight Train Service and Effects on Brake Equipment, Brake Shoes and Wheels (78-RT-9) (A) **O 91**

Locomotives
The Design and Development of Heated, Impact Resistant Windshields for Locomotives (78-RT-5) (A) **O 90**
Higher Fuel Efficiency for EMD Diesel Locomotives (78-RT-4) (A) **O 90**
Locomotive Matters (C) **My 50**
Meritorious Metroliners (C) **My 50**
A Network Approach to Brake Pipe Leakage (77-WA/Fics-10) (A) **Ap 97**
The New Electric Locomotives **Ja 43**; (C) **Mr 48**
Performance of GM10B Electric Locomotive (C) **Mr 48**
Progress in Railway Mechanical Engineering 1976-1977 Report of Survey Committee Locomotives (77-WA/RT-12) (A) **Mr 85**
Railroad Remarks (C) **Je 50**

Loctite Adhesives
Millionths-of-an-inch Accuracy (BTR) **D 47**

Loehke, R. I. Stratified Versus Well-Mixed Sensible Heat Storage in a Solar Space Heating Application (78-HT-49) (A) **O 98**

Loerch, R. J. On the Existence of Circle-Point and Center Point Circles for Three Precision-Point-Dyad Synthesis (78-DET-44) (A) **D 91**

Log-Spiral Blade Surface
A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**

Logan, D. Analysis of Edge-Beam Reinforced Layered Cylindrical Pressure Vessels (78-PVP-103) (A) **N 124**

Logging Tools
Electronic Logging Tool (BTR) **Ap 61**

Logic Circuits
Characteristics of a Novel Pneumatic Stepping Motor (77-WA/Fics-7) (A) **Ap 97**

Logic Synthesis
Output Circuit Selection and Output Feedback in Fluid Logic Synthesis (77-WA/Fics-11) (A) **Ap 98**

Lomnes, R. K. A Specialized Microprocessor System for Decompression Management of Deep Diving (77-WA/Oce-7) (A) **Ap 93**

Long Arc Shrouding
Long Arc Shrouding—A Reliability Improvement for Untuned Steam Turbine Blading (77-JPGC-Pwr-12) (A) **Mr 89**

Longitudinal Direction
Left Ventricular Area Ratios: Comparison of the Circumferential and Longitudinal Directions and Correlation with Left Ventricular Function (77-WA/Bio-11) (A) **Ap 99**

Longitudinal Vortices
Longitudinal Vortices in a Horizontal Boundary Layer in Water Including the Effects of the Density Maximum at 4°C (78-HT-25) (A) **O 94**

Longitudinal Water Boundary Layer
The Longitudinal Water Boundary Layer Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**

Longwall Mining System
U.S. Longwall Mining System (BTR) **Je 59**

Longwell, J. P. Alternative Aircraft Fuels (78-GT-59) (A) **Jl 94**

Loo, F. T. C. On the Use of Strain Energy Density Fracture Criterion in the Design of Gears Using Finite Element Method (77-DET-158) (A) **F 129**

Lookout Towers
Solar-Powered Lookout Towers (BTR) **O 49**

Lord, P. R. The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) (A) **F 132**

Loss Coefficients
Rationalization of Empirical Loss Coefficients and Their Application In One Dimensional Performance Prediction Procedures for Centrifugal Compressors (78-GT-177) (A) **S 75**

Loss-of-Coolant Accident
Dynamic Analysis of a Pressurized Water Reactor Coolant System Subjected to Postulated Loss-of-Coolant Accident Transient Loads (77-WA/DE-23) (A) **Mr 96**

Lottes, P. A. Elections to Fellow Grade **Ap 90**

Lou, D. Y. S. Heat Conduction Experiments in Rarefied Gases Confined Between Two Concentric Cylinders (78-HT-34) (A) **O 96**

Loudin, G. W. Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**

Louis, J. F. On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) (A) **Jl 90**

Louthan, J. D. Propulsion Cycle and Configuration Commonality Considerations for Subsonic V/STOL Design (78-GT-88) (A) **Ag 106**

Love, W. J. An Analysis of the Propagation of a Brittle Circumferential Crack in a Pipe Subjected to Axial Stresses (78-PVP-101) (A) **N 124**; Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**; Embedded Elliptical Crack at a Corner (78-PVP-5) (A) **O 102**; A Procedure for Estimating the Stress Intensity Factor of a Flattened Surface Crack at a Nozzle Corner (78-PVP-95) (A) **N 123**

Lovins, A. B. *(author)* Soft Energy Paths: Toward a Durable Peace (CB) **D 97**

Low-Cycle Fatigue
Low-Cycle Fatigue and Ultimate Strength Related to Gear Design (77-DET-66) (A) **Ja 113**

Low Temperature Physics
The Quest for Absolute Zero: The Meaning of Low Temperature Physics (CB) **Mr 100**

Lowe, A. L., Jr. Surveillance Capsule Results from the Oconee Class Reactors (78-Mat-22) (A) **O 101**

Lowen, G. G. The Elastic-Dynamic Behavior of a Counterweighted Rocker Link with an Overhanging Endmass in a Four-Bar Linkage Part I: Theory (78-DET-23) (A) **D 90**; Part II: Application and Experiment (78-DET-24) (A) **D 90**

Lower Bound Analysis
Limit Analysis of Hollow Disk Forging Part 2: Lower Bound (77-WA/Prod-3) (A) **My 103**

Lu, D. C. Cost-Effectiveness Study of Heat Pipe Heat Exchangers (77-WA/HT-5) (A) **Ap 101**

Lu, S. C. H. Safety Margin of Containment of Structures Under Impulsive Loading (78-PVP-68) (A) **N 120**

Lubin, B. T. Response of a Tube Bank to Turbulent Crossflow Induced Excitation (77-DET-142) (A) **F 128**

Lubricant Properties
Traction Behavior in Sliding ehl Contacts (77-Lub-5) (A) **F 132**

Lubricants
Attributes of an Ideal Water-Base, Nonpolluting Hot Forging Lubricant (77-Lub-33) (A) **Mr 87**
The Conflicting Roles of Carbon Tetrachloride as a Boundary Lubricant (77-WA/Prod-7) (A) **Je 104**
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) (A) **Mr 87**
Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) (A) **Mr 86**
Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) (A) **F 132**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) (A) **Mr 86**
Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) (A) **Mr 86**
The Pitting Performance of Hardened Steels (77-DET-39) (A) **Ja 111**
The Practical Significance of Designing to Gear Pitting Fatigue Life Criteria (77-DET-122) (A) **F 128**

Lubricated Elastomers
The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) (A) **Mr 87**

Lubricating Oil Refinery
Lube Oil Project (IF) **O 60**

Lubrication
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) (A) **Mr 87**
An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) (A) **Mr 86**
Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) (A) **Mr 87**
Design Considerations in Mechanical Face Seals for Improved Performance—2 (77-WA/Lub-4) (A) **Jl 96**
Designing Mechanical Face Seals for Improved Performance. Part 1 - Basic Configurations **N 38**; Part 2—Lubrication **D 18**
Determining Minimum Film Thickness for Ball Bearings (BTR) **F 56**
Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) (A) **Mr 86**
Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) (A) **Mr 86**
Lubrication of High-Speed Large Bore Tapered-Roller Bearings (77-Lub-13) (A) **F 133**
Pitting Can Be Caused by Inadequate Lubrication (77-DET-114) (A) **F 125**
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) (A) **Mr 86**

Lubrication Jet Flow
Study of Lubrication Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) (A) **F 124**

Lubrication Systems
Contamination in Lubrication Systems (77-WA/Lub-1) (A) **Jl 96**

Lubrication Technology
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) (A) **Mr 86**
Asperity Interactions in EHD Contacts (77-Lub-19) (A) **Mr 86**
Attributes of an Ideal Water-Base, Nonpolluting Hot Forging Lubricant (77-Lub-23) (A) **Mr 87**
An Average Flow Model for Determining Effects of Three-

Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) (A) **Mr 86**
Contamination in Lubrication Systems (77-Lub-1) (A) **Jl 96**
Costs and Causes of Maintenance in a Ship's Diesel Propulsion System (77-WA/Lub-2) (A) **Jl 96**
Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) (A) **Mr 86**
Design Considerations in Mechanical Face Seals for Improved Performance: Part 1 (77-WA/Lub-3) (A) **Jl 96**; Part 2 (77-WA/Lub-4) (A) **Jl 96**
Determining the Coefficient of Friction for Rolling Disks (77-Lub-11) (A) **Mr 85**
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) (A) **Mr 86**
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) (A) **Mr 86**
Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) (A) **Mr 86**
The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearing (77-Lub-8) (A) **F 133**
Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) (A) **Mr 86**
Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) (A) **F 132**
Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) (A) **Mr 86**
The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) (A) **Mr 87**
Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) (A) **Mr 86**
Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) (A) **F 132**
Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) (A) **Mr 86**
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) (A) **F 133**
An Investigation Into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) (A) **Mr 86**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) (A) **Mr 86**
Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) (A) **Mr 86**
Lubrication of High-Speed, Large Bore Tapered-Roller Bearings (77-Lub-13) (A) **F 133**
A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) (A) **F 132**
Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) (A) **Mr 87**
Phase Change in Liquid Face Seals (77-Lub-12) (A) **Mr 85**
Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) (A) **F 132**
Review of Wear Problems in the Computer Industry (77-Lub-4) (A) **F 132**
Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) (A) **Mr 86**
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) (A) **Mr 86**
Thermoelastic Effects in Frictionally Heated Line Contact of Slab Like Bodies (77-Lub-21) (A) **Mr 86**
The Thermoelastic Patch Contact Problem for Large Peclet Number (77-Lub-32) (A) **Mr 87**
Traction Behavior in Sliding ehl Contacts (77-Lub-5) (A) **F 132**
On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) (A) **Mr 86**
Two Temperature Gradients Model for Friction Failure (77-Lub-28) (A) **Mr 86**
Lucke, V. H. Commercial Powerplant Design Development for the Coal Fired Combined Cycle (77-JPGC-GT-6) (A) **Mr 93**
Ludwig, G. R. A Rotating Stall Control System for Turbojet Engines (78-GT-115) (A) **Ag 109**
Ludwig, L. P. Design Considerations in Mechanical Face Seals for Improved Performance: Part 1 (77-WA/Lub-3) (A) **Jl 96**; Part 2 (77-WA/Lub-4) (A) **Jl 96**; Part 1—Basic Configurations **N 38**; Part 2—Lubrication **D 18**
Luisoni, L. E. On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) (A) **Mr 93**; Vibrations of Beams and Plates with Edges Elastically Restrained Against Rotation Carrying Elastically Mounted Masses (77-DET-87) (A) **F 122**
Lukas, M. Spectrometric Analysis of Residual Fuel (78-GT-93) (A) **Ag 107**
Luke, R. R. Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) (A) **Ja 106**
Lumped Mass Systems
Determination of the Critical Operating Speeds of Planar Mechanisms by the Finite Element Method Using Planar Actual Line Elements and Lumped Mass Systems (78-DET-37) (A) **D 91**
Elastodynamics of Planar Mechanisms Using Planar Actual Finite Line Elements, Lumped Mass Systems Matrix-Exponential Method, and the Method of "Critical-Geometry-Kineto-Elasto-Statics" (CGKES) (78-DET-26) (A) **D 89**
Lunar Ranging Program
The Moon Through a Fly's Eye (BTR) **Jl 46**
Lunardini, V. J. Approximate Thawing of Permafrost Beneath a Buried Pipe (77-WA/HT-18) (A) **Ap 103**
Lund, J. W. Critical Speeds, Stability, and Response of a Geared Train of Rotors (77-DET-30) (A) **Ja 110**; Some Experiments on Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) (A) **Ja 109**
Lunt, H. E. Hot Corrosion in Gas Turbines (77-WA/Fu-3) (A) **My 92**
Lynch, P. M. An Economic Guideline for the Design of Programmable Assembly Machines (77-WA/Aut-2) (A) **Je 102**
Lynch, R. P. The Elastallic Seal—A New Concept in Mechanical Connection of Marine Pipelines (77-Pet-84) (A) **Ja 107**
Lynch, T. P. The Agency You Love to Hate (C) **F 52**
Lyons, D. W. Calculation of Peak Yarn Tension During Ring-Spinning (77-Tex-6) (A) **F 132**; A New Hooked Needle Device for Forming Fiber Beards for Length and Strength Measurement (77-Tex-2) (A) **F 131**; An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) (A) **F 131**
Lytle, R. Environmental Monitoring Data Acquisition Computer System (EMD-ACS) (77-WA/APC-3) (A) **My 102**

M

Mabie, H. H. Technology Transfer in the Determination of Torque Characteristics of Instrument Ball Bearings at High Speeds with Radial and Axial Loads (78-DET-69) (A) **D 94**
Macander, A. B. Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) (A) **Je 110**
Maccallum, N. R. L. The Effect of a Transversely Injected Stream on the Flow Through Turbine Cascades: Part 3—Influence of Aspect Ratio (78-GT-24) (A) **Jl 89**
MacDonald, J. A. Analytical Approach for the Design of Fine-Metering Valves (77-WA/FE-24) (A) **Ap 96**
Macecek, M. Metallurgical Causes of Difficulties with Ultrasonic Inspection of Austenitic Welds (78-PVP-8) (A) **O 102**
Machacek, S. Design and Operation of a Large-Diameter (1.67-m) Steamline (78-PVP-86) (A) **N 122**
Machinability Data Optimization
Application of Goal Programming to Machinability Data Optimization (77-DET-19) (A) **Ja 108**
Machine Design
An Economic Guideline for the Design of Programmable Assembly Machines (77-WA/Aut-2) (A) **Je 102**
Human Factors in Machine Design (78-DET-68) (A) **D 94**
Machine Foundations
Handbook of Machine Foundations (CB) **S 78**
Machine Loading
Machine Loading and Product-Mix Analysis for Group Technology (77-WA/Prod-19) (A) **Je 105**
Machine Structures
Determination of Dynamic Characteristics of an Impact Forming Machine Structure (77-WA/Prod-5) (A) **My 102**
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/Prod-1) (A) **My 102**
Machine Tool Chatter Control Systems
Application of the Regeneration Spectrum to the Design of Machine Tool Chatter Control Systems (77-WA/Aut-8) (A) **Je 103**
Machine Tool Gear Transmission
Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) (A) **F 131**
Machine Tool Industry
Imports—The Machine Tool Industry's Achilles' Heel (NR) **Ja 73**
Machine Tool Spindles
Stiffness of Machine Tool Spindles (77-WA/Prod-42) (A) **Je 108**
Machine Tool Structures
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) (A) **Je 105**
Machine Tools
Big Soviet Market for Western Machine Tools (NB) **Ag 74**
Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) (A) **Je 108**
1978 Machine Tool Show (NB) **Ag 74**
Millionths-of-an-inch Accuracy (BTR) **D 47**
Machinery Conditions
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/Prod-4) (A) **My 103**
Machinery Reliability
Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) (A) **Mr 95**
Machines
Machines and Mechanisms: 1979 World Congress in Montreal (NR) **N 76**
Machining
Morrison and Parry Seals for Water Pressures up to 345 MPa 103
Tool Life Distribution: Part 3—Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) (A) **Je 108**
Machining Centers
NC Machining Center (IF) **F 62**
Machining Economics
Machining Economics and Tool Life Variation: Part 1—Basic Considerations and Their Practical Implications (77-WA/Prod-12) (A) **Je 104**
Machining Process
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/Prod-19) (A) **Je 105**
Machining System Dynamics
Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) (A) **Je 108**
Machining Tolerance
Sealing Forces for Leak-Tight Operation of a Self-Energized Pressure Vessel Closure (78-PVP-16) (A) **O 103**
Maclsaac, B. D. An Analysis Procedure for the Validation of On-Site Performance Measurements of Gas Turbines (78-GT-152) (A) **Ag 115**
MacMillan, D. B. An Application of the Substructuring Method to Heat Transfer (77-PVP-32) (A) **Ja 108**
MacPherson, P. B. The Pitting Performance of Hardened Steels (77-DET-39) (A) **Ja 111**; The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) (A) **F 124**
Maes, P. Operating Experience on Residual Fuel Oil with A W251 Combustion Turbine (78-GT-104) (A) **Ag 108**
Maewal, A. Stable Postbuckling Equilibria of Axially Compressed, Elastic Circular Cylindrical Shells: A Finite-Element Analysis and Comparison With Experiments (77-WA/APM-9) (A) **Jl 97**
Magargee, D. L. Life Support Systems for Biological Specimens in the Shuttle/Spacelab (78-ENAs-38) (A) **N 114**
Mager, T. R. A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) (A) **O 100**; Effects of Irradiation on A508 Class 2 and 3 Forging Grade Steels (78-Mat-21) (A) **O 101**
Magnet Coils
Magnet Coils for Nuclear Fusion (IF) **D 49**
Magnetic Energy Storage
Heat Transfer from Aluminum to HE II—Application to Superconductive Magnetic Energy Storage (78-HT-51) (A) **O 97**

Magnetic Fields
The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) (A) **Ja 109**
Hall-Effect Toggle Switch (BTR) **Ap 55**
Liquid Metal Heat Pipe Performance in the Presence of a Transverse Magnetic Field (78-ENAs-20) (A) **N 112**
Magnetic Switch
Magnetic Rotary Switch (BTR) **Mr 51**
Magnetic Trap
Fusion Energy (77-WA/NE-1) (A) **Je 100**
Magnetically Suspended Flywheel
Stress Analysis and Maximization of Energy Density for a Magnetically Suspended Flywheel (77-WA/DE-24) (A) **Mr 96**
Magnetohydrodynamic Energy
Magnetohydrodynamic Energy for Electric Power Generation (CB) **Jl 101**
Magnetohydrodynamic Flow
Radiative Transfer in Hartmann MHD Flow (78-HT-18) (A) **O 94**
Magnetohydrodynamic Generators
MHD on Target (ES) **D 15**
Magnetohydrodynamic Solar Energy Converter (78-DET-70) (A) **D 94**
Magnetohydrodynamics
The Breeder—Now or Never (NR) **Je 66**
Coal Fired Non-Equilibrium, Closed-Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**
Design and Calculated Performance and Cost of the ECAS Phase II Open Cycle MHD Power Generation System (77-WA/Ener-5) (A) **My 94**
MHD Heat Transfer Problems - An Overview **Mr 32**
Mah, R. W. Vestibular Function Research Aboard Spacelab (78-ENAs-25) (A) **N 112**
Mahefkey, E. T. Analysis of Transient Heat Transfer in Porous Solids with Application Toward Phase Separation Processes (77-WA/HT-13) (A) **Ap 102**
Maher, W. E. Rear Surface Noncontact Measurements of Laser Target Temperatures (78-HT-58) (A) **O 98**
Mahig, J. Optimization of a Nonlinear Torsional Mechanical System (77-DET-107) (A) **F 125**
Maintenance Costs
Costs and Causes of Maintenance in a Ship's Diesel Propulsion System (77-WA/Lub-2) (A) **Jl 96**
Maintenance Program
Elimination of a Resonant Fatigue Problem for Major Maintenance Benefits (77-DET-135) (A) **F 127**
Majumdar, A. K. A Numerical Investigation of Three-Dimensional Flows in a Rotating Duct by a Partially-Parabolic Procedure (77-WA/FE-7) (A) **Ap 94**
Maki, M. A Study on Involute Worm Gearing on Non-Right Axial Angle (77-DET-16) (A) **Ja 110**
Malkin, S. Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/Prod-27) (A) **Je 106**; Mechanics of Rotary Dressing of Grinding Wheels (77-WA/Prod-12) (A) **Je 105**; Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) (A) **Je 106**
Mall, S. Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**
Mallory, K. M., Jr. Life Sciences in the Shuttle Era (78-ENAs-34) (A) **N 113**
Mallow, W. A. Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) (A) **Ja 101**
Malone, B. G. Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**
Man-Computer Environment
A Graphic Man-Computer Environment for Three-Dimensional Engineering Design (77-DET-117) (A) **F 126**
Management
All or Nothing at All (NB) **O 68**
Cash Flow and the Analysis of Capital Investments (77-WA/Mgt-3) (A) **My 96**
Construction Management: A Professional Approach (CB) **O 107**
Controlling Innovation: A People-Oriented Process (77-WA/Mgt-1) (A) **My 96**
The Cultures of Management (CB) **Ja 116**
Estimating and Project Management for Small Construction Firms (CB) **Ja 117**
Formulating an International Contract for Engineering and Technical Services (77-WA/Mgt-4) (A) **My 96**
Improving Productivity in the Third Century (77-WA/Mgt-2) (A) **My 96**
Improving U.S. Productivity: Part 1—Organizing for Increasing Productivity **S 25**; Part 2—How to Improve Management-Employee Relationships **O 30**; Part 3—Methodologies for Boosting Productivity **N 47**
Laissez-Faire vs. Leadership (C) **My 52**
Management Success Story: . . . a nuts-and-bolts view **F 28**
Managing the Flow of Technology (CB) **F 134**
Management Curriculum
Energy Management Education (ES) **Jl 22**
Management Executives
Management Executives' Conference (NR) **Ap 69**
Management Philosophy
Engineering Design Interfaces: A Management Philosophy (CB) **Je 113**
Management Workshop
Summary of the ORNL-Sponsored Reactor Radwaste Management Workshop (77-JPGC-NE-14) (A) **Mr 91**
Managerial Planning
Managerial Planning with Linear Programming in Process Industry Operations (CB) **D 96**
Managers
Controlling Innovation: A People-Oriented Process (77-WA/Mgt-1) (A) **My 96**
Plant Engineers and Managers Guide to Energy Conservation (CB) **F 135**
Mancuso, J. R. A New Wrinkle to Diaphragm Couplings (77-DET-128) (A) **F 127**
Mandatory Retirement
Why Mandatory Retirement? (PS) **Ja 81**
Manifold Center
LPS Manifold Center (IF) **S 56**
Mann, R. W. Cybernetic Considerations in the Use of Myoelectric Activity for Prosthesis Control (77-WA/Bio-10) (A) **Ap 98**
Manned Space Facility
ECLSS Definition for a Low-Cost Space Construction Base (78-ENAs-15) (A) **N 112**
Manned Space Missions
Water Electrolysis System: H_2 and O_2 Generation (78-ENAs-3) (A) **N 110**
Manning, G. B. Design of a High Efficiency Combined Cycle Electric Power Plant-for Low Btu Coal-Gas (78-GT-125) (A) **Ag 111**; Evaluation of a Water-Cooled Gas Turbine Combined Cycle Plant (78-GT-77) (A) **Ag 105**; The High Temperature Water Cooled Gas Turbine in Combined Cycle with Integrated Low Btu Gasification (77-JPGC-GT-7) (A) **Mr 93**
Manos, W. P. Progress in Railway Mechanical Engineering (1976-1977 Report of Survey Committee) Cars and Equipment (77-WA/RT-5) (A) **Mr 85**
Mansour, M. N. Low NOx Combustion of Paraho Shale Oil in a 45-MW Utility Boiler (77-WA/Fu-1) (A) **My 92**
Manufacturer Service Strategy
One Manufacturer's View of Gas Turbine Service (78-GT-49) (A) **Jl 93**
Manufacturing
Geometric Characteristics Design and Manufacturing of Noncircular Gears (77-DET-177) (A) **F 131**
Manufacturing Method of Large-Size Marine High-Pressure Gears (77-DET-35) (A) **Ja 110**
A Proposed Scheme for Computer Aided Design and Manufacture of Radial Turbine Rotors (78-GT-156) (A) **Ag 115**
Manufacturing and Alignment Error
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) (A) **Ja 114**
Manufacturing Processes
Factors Affecting The Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) (A) **O 98**
Manufacturing Systems
Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/Prod-32) (A) **Je 107**
On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/Prod-14) (A) **Je 104**
Manufacturing Technology
The Application of Low Cost Manufacturing Technology to a Turbine Gas Generator (78-GT-202) (A) **S 77**
Mapping
Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) (A) **Ja 103**
March, P. A. Velocity Distributions and Turbulence Intensities at Tubesheets in a Two-Pass Condenser Model (78-JPGC-NE-6) (A) **D 85**
Margetich, S. Experimental Investigation of Simulated Helicopter Fuel Cell Impact Phenomenon (78-DET-79) (A) **D 95**
Margolis, D. Analysis and Simulation of Planar Mechanism Systems Using Bond Graphs (78-DET-2) (A) **D 87**
Marine Diesel Plant
Medium-Speed Diesel Plant (IF) **Je 65**
Marine Engine
Development of the Garrett GTPF990—A 5000-Horsepower Marine and Industrial Gas Turbine Engine (78-GT-44) (A) **Jl 92**
Marine Environment Protection
Houston Welcomes Offshore Technology Conference (NR) **Ap 68**
Marine Fenders
New Fender Covered by Thick, Tough Elastomer (BTR) **F 57**
Marine Fuel Needs
Synthetic Fuels Derived from Coal for Marine Applications (78-GT-20) (A) **Jl 88**
Marine Gas Turbine
An Investigation of Turbine Erosion by Combustor Generated Carbon in a Lightweight Marine Gas Turbine (78-GT-96) (A) **Ag 107**
Marine Spey—SM1A Propulsion Module (78-GT-58) (A) **Jl 94**
Marine Gas Turbine Engine
Description and Performance of a 7000-Shp Marine Gas Turbine Engine (78-GT-188) (A) **S 76**
Marine Gas Turbine Inlet
Marine Gas Turbine Inlet and Exhaust Systems for the R.N. (78-GT-190) (A) **S 75**
Marine Gas Turbines
Marine Gas Turbines in the Royal Navy 1976-1978 (78-GT-197) (A) **S 76**
Marine Pipelines
The Elastallic Seal—A New Concept in Mechanical Connection of Marine Pipelines (77-Pet-84) (A) **Ja 107**
Marine Power Plant
Navy Marine Power Plant (BTR) **Ja 56**
Marine-Pressure Gears
Manufacturing Method of Large-Size Marine High-Pressure Gears (77-DET-35) (A) **Ja 110**
Marine Propulsion Engines
Future Prospects for Naval Propulsion Gas Turbines (78-GT-106) (A) **Ag 109**
Marine Riser
Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) (A) **Ja 106**
Mechanical Systems for Handling Drill Pipe, Riser, and Casing (77-Pet-77) (A) **Ja 106**
Market Research
The Influence of Market Research on Product Design and Materials Selection (78-DE-3) (A) **S 72**
Marks, C. H. A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) (A) **Ap 95**; A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) (A) **Ap 96**; A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) (A) **Ap 95**
Marmo, J. Improving Design Problem Representation (78-DET-73) (A) **D 95**
Marmol, R. A. Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) (A) **Ja 109**
Marriott, P. W. Metric Dozen? (C) **Mr 47**
Marron, H. D. The Gas Turbine Waste Heat Recovery System and the U.S. Navy (78-GT-170) (A) **Ag 116**
Marsh, W. D. A New Approach to Planning with Gas Turbines (77-JPGC-GT-3) (A) **Mr 93**
Marshall, J. L. Maintenance and Requalification of a Large LMFBR Component (78-JPGC-NE-1) (A) **D 84**
Marshek, K. M. A Technique for Assessing the Running Life of Thermoplastic Conveyor (77-DET-160) (A) **F 129**
Marstiller, J. K. 20 HP Mini-RPV Demonstrator Engine Programs (78-GT-200) (A) **S 76**
Marston, C. H. Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**
Marston, T. U. A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) (A) **O 100**; Flaw Tolerance Evaluation of Heat Affected Zones (78-Mat-14) (A) **O 100**
Martel, J. G. Helium Blistering in Metals (78-Mat-5) (A) **O 99**
Martin, D. A. Extended Duration Orbiter Life Support Options (78-ENAs-31) (A) **N 113**
Martin, F. E. Development of Rescue and Escape

Breathing Apparatus Based on a Chlorate Candle Oxygen Source (78-ENAs-1) (A) **N 110**

Martin, H. R. Noise Radiated from Hydraulic Circuits (78-DE-23) (A) **O 92**

Martin, J. *(author)* Future Developments in Telecommunications (CB) **Je 113**

Martin, J. R. Ambient Ground-Level Sulfur Dioxide Concentrations in the Vicinity of a Multiple Stack Power Plant During and After Operation (77-WA/APC-4) (A) **My 102**

Martin, J. T. Review of Wear Problems in the Computer Industry (77-Lub-4) (A) **F 132**

Martin, S. W. Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) (A) **Ja 113**

Martineau, C., Jr. Grid Connected Electrical-Thermal (Cogeneration) Energy System for University of California, Davis, California (78-GT-134) (A) **Ag 112**

Mashburn, W. H. Transferring Technology to Solve Energy Problems (78-DET-76) (A) **D 95**

Mashimo, T. Effects of Fluid Leakage on Performance of a Centrifugal Compressor (78-GT-143) (A) **Ag 114**

Masom, R. A. Recent Developments in Sensors for the Gas Turbine Engine (78-GT-52) (A) **Jl 94**

Masri, S. F. Analytical Experimental Correlation of a Nonlinear System Subjected to a Dynamic Load (78-PVP-37) (A) **O 105**; Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) (A) **Ja 115**; Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) (A) **F 123**

Mass

Reduction of Allowable Seismic or Weight Piping Span Length Due to Presence of a Concentrated Mass (78-PVP-19) (A) **O 104**

Mass Coupling Effects

Mass Coupling Effects in the Dynamic Analysis of Nuclear Power Plant Systems (78-PVP-28) (A) **O 104**

Mass Flow

Experimental Investigation of Unsteady Phenomena in Vaneless Radial Diffusers (78-GT-23) (A) **Jl 89**

Mass Flow Meter

Coriolis/Gyroscopic Flow Meter (77-WA/FM-4) (A) **Ap 100**

Mass Matrices

Dynamic Finite Element Analysis of Cracked Bodies (78-PVP-94) (A) **N 123**

Mass Parameters

Partial Dynamic State Synthesis by Use of Mass Parameters in a System Coupler Link (78-DET-61) (A) **D 93**

Mass Transfer

Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**

Heat Transfer in Packed Beds at Low Reynolds Number (78-HT-46) (A) **O 96**

Transient Heat and Mass Transfer in Soils (78-HT-31) (A) **O 95**

Mass Transit

Mass Transit Extended (IF) **S 57**

Mass Transportation

Automated Urban Mass Transportation (BTR) **Ja 56**

Masses

Vibration of Beams Carrying Discrete Dampers and Masses (77-WA/DE-7) (A) **Mr 94**

Mast, P. W. Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) (A) **Je 110**

Masuda, S. Stabilizing and Destabilizing Effects of Coriolis Force on Two-Dimensional Laminar and Turbulent Boundary Layers (78-GT-1) (A) **Jl 87**

Masumura, R. A. The Elastic Energy of Interacting Edge Dislocations in an Infinite Array (77-WA/APM-20) (A) **Jl 98**

Masuko, M. Analytical Prediction of Three-Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) (A) **My 103**

Match Permeability

The Influence of Drying and Stress on the Permeability of Texas Lignite (77-Pet-26) (A) **Ja 101**

Material Handling

Seminar and Forum Planned with National Material Handling Show (NR) **My 71**

Material Tension

Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) (A) **Ja 112**

Materials

Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) (A) **Je 109**

Analysis of Crack Arrest in Reactor Pressure Vessels (78-Mat-16) (A) **O 100**

Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) (A) **O 99**

Cyclic Plasticity for Non-proportional Paths: Part 1—Cyclic Hardening, Erasure of Memory, and Subsequent Strain Hardening Experiments (77-WA/Mat-12) (A) **Je 110**; Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) (A) **Je 110**

Demonstration of Ceramic Design Methodology for a Ceramic Combustor Liner (78-GT-137) (A) **Ag 113**

A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) (A) **O 100**

The Determination of the J-Integral on Precracked Chapy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**

Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) (A) **Je 110**

Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) (A) **Je 108**

Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**

The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) (A) **Je 108**

The Effect of Material Constitutive Models on Stress Wave Propagation Calculations (77-WA/Mat-8) (A) **Je 109**

Effects of Irradiation on A508 Class 2 and 3 Forging Grade Steels (78-Mat-21) (A) **O 101**

Elastic-Plastic R-Curves (78-Mat-12) (A) **O 99**

Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) (A) **Ag 114**

Extending the Life of Geothermal Wells (ES) **Je 19**

Factors Affecting The Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) (A) **O 98**

Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) (A) **Je 110**

Fatigue Crack Growth Model for Part-Through Flaws in Plates and Pipes (78-Mat-9) (A) **O 99**

Fatigue Crack Propagation in 8 and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) (A) **Je 109**

Fatigue Crack Propagation of Short Cracks (78-Mat-7) (A) **O 100**

Flaw Tolerance Evaluation of Heat Affected Zones (78-Mat-14) (A) **O 100**

Fracture Analysis of Adhesively Bonded Cracked Panels (77-WA/Mat-2) (A) **Je 108**

Growth Characteristics of a Fatigue Crack Approaching and Growing Beneath an Adhesively Bonded Doubler (77-WA/Mat-14) (A) **Je 110**

Helium Blistering in Metals (78-Mat-5) (A) **O 99**

The Influence of Material Variability on the Predicted Environmental Behavior of Composite Materials (77-WA/Mat-9) (A) **Je 109**

J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) (A) **O 99**

Microporous Polyolefin Films (BTR) **Ja 64**

On the Minimum-Commitment Method for Correlation of Creep-Rupture Data (78-Mat-18) (A) **O 100**

A Parametric Study of Fatigue Crack Growth Behavior in Adhesively Bonded Metallic Structures (77-WA/Mat-5) (A) **Je 109**

A Photoelastic Evaluation of the Method of Measuring Crack Arrest Toughness with a Tappered DCB Specimen (78-Mat-15) (A) **O 100**

A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) (A) **O 100**

Radiation Effects in Boiling Water Reactor Pressure Vessel Steels (78-Mat-11) (A) **O 99**

Reference Fracture Toughness Curves for Irradiated Pressure Vessel Steels (78-Mat-20) (A) **O 101**

Residual Fatigue Life Determination of Anchor Bolts (78-Mat-8) (A) **O 99**

The Rule of Codes, Standards and Regulations in Nuclear Pressure Vessel Surveillance Programs (78-Mat-24) (A) **O 101**

Special Engineering Problems of TFTR (77-WA/NE-4) (A) **Je 100**

Spectrum Crack Growth in Adhesivnly Bonded Structure (77-WA/Mat-7) (A) **Je 109**

Stress Corrosion Crack Growth and Fracture Predictions for BWR Piping (78-Mat-23) (A) **O 101**

Structure and Properties of Engineering Materials (CB) **My 106**

Surveillance Capsule Results from the Oconee Class Reactors (78-Mat-22) (A) **O 101**

Three High-Pressure Component Failures (78-Mat-3) (A) **O 98**

On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) (A) **O 98**

Materials Handling

Materials Handling Division Honors Kentucky Plant *(review)* **N 104**

Materials Handling Handbook Gets Green Light (NB) **D 58**

Problems in Control of Particulates in Bulk Material Handling (77-WA/APC-5) (A) **My 102**

Materials Selection

The Influence of Market Research on Product Design and Materials Selection (78-DE-3) (A) **S 72**

Source Book on Materials Selection (CB) **D 97**

Mates, R. E. Left Ventricular Area Ratios: Comparison of the Circumferential and Longitudinal Directions and Correlation with Left Ventricular Function (77-WA/Bio-11) (A) **Ap 99**

Mathematical Investigation

Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Ends (77-Pet-42) (A) **Ja 101**

Mathews, R. E. Dynamic Analysis of a Pressurized Water Reactor Coolant System Subjected to Postulated Loss-of-Coolant Accident Transient Loads (77-WA/DE-23) (A) **Mr 96**

Mathis, W. J. Jet Cooling at the Rim of a Rotating Disk (78-GT-25) (A) **Jl 89**

Mating Device

A Space-Age Mating (BTR) **Mr 52**

Matrix Exponential Methods

Elastodynamics of Planar Mechanisms Using Planar Actual Finite Line Elements, Lumped Mass Systems Matrix-Exponential Method, and the Method of "Critical-Geometry-Kineto-Elasto-Statics" (CGKES) (78-DET-26) (A) **D 89**

Matrix Method

The Riccati Transfer Matrix Method (77-DET-32) (A) **Ja 110**

On the Torsional Vibration of Branched Systems Using Extended Transfer Matrix Method (77-WA/DE-4) (A) **Mr 93**

Matrix Representation

Structural Analysis of Kinematic Chains and Mechanisms Based on Matrix Representation (78-DET-29) (A) **D 90**

Matson, L. Seals for Geothermal Roller Drill Bits (77-Pet-53) (A) **Ja 103**

Matsuda, T. Vibrations and Vibrationless Rotation-Reciprocation Internally Geared Device, and on Vibrationless Chain Saw Utilizing This Device (77-DET-157) (A) **F 129**

Matsumoto, S. On the Design of Surface Durability of Rolling-Sliding Contact Surface (77-DET-115) (A) **F 125**

Matteson, L. G. A Comparison of Characteristics of Large Process Control Computer Systems (77-WA/Aut-10) (A) **Je 103**

Matthew, G. K. An Alternative to Euclid's Algorithm (78-DET-41) (A) **D 92**; Elementary Synthesis of Damping in Conjunction with Planar Mechanisms (78-DET-49) (A) **D 92**; Partial Dynamic State Synthesis by Use of Mass Parameters in a System Coupler Link (78-DET-61) (A) **D 93**

Mattingly, G. E. Numerical Solutions for Laminar Orifice Flow (77-WA/FE-13) (A) **Ap 95**

Mattu, R. K. Dynamic Analysis of a Pressurized Water Reactor Coolant System Subjected to Postulated Loss-of-Coolant Accident Transient Loads (77-WA/DE-23) (A) **Mr 96**

Maule, H. G. *(editor)* Human Factors in Work, Design and Production. (Case Studies in Ergonomics Practice, Vol. 1 (CB) **Ja 116**

Maxwell, R. Railroad Remarks (C) **Je 50**

May, T. A Study of Thermal Fatigue Life Prediction of Air-Cooled Turbine Blades (78-GT-63) (A) **Jl 95**

May, W. B., Jr. Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) (A) **My 97**

Mayer, E. *(author)* Mechanical Seals (CB) **Je 114**

Mayer, J. E. Optimal Edge Geometry for Maximum Tool

Life (77-WA/Prod-43) (A) **Je 108**

Mayes, I. W. Crack Propagation in Rotating Shafts (77-DET-164) (A) **F 130**

Mayne, R. W. New Optimization Techniques (77-DET-169) (A) **F 130**

Mayinger, F. Dynamic Characteristics of Double-Pipe Heat Exchangers with Double Phase Change (77-WA/HT-26) (A) **Ap 104**

McAnge, T. R., Jr. Transferring Technology to Solve Energy Problems (78-DET-76) (A) **D 95**

McBride, J. P. Design of Sodium-Cooled Reactor Systems and Components for Maintainability (78-JPGC-NE-3) (A) **D 84**

McBride, R. W. Optimizing Turbine Stage Efficiency by Selecting and Matching Reaction, Velocity Ratio, and Clearance Ratio (77-WA/FE-10) (A) **Ap 94**

McC. Ettles, E. M. The Rigidity and Performance of a Helicopter Gearbox with a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) (A) **F 124**

McCabe, D. E. Elastic-Plastic R-Curves (78-Mat-12) (A) **O 99**

McCalley, R. B., Jr. Elections to Fellow Grade **Ag 102**

McCann, C. R. Combustion of Coal-Oil-Slurry in a 100-HP Firetube Boiler (77-WA/Fu-5) (A) **My 93**

McConnell, P. M. Flow in the Inlet Plenum Feature Model of the Clinch River Breeder Reactor (77-WA/FE-19) (A) **Ap 96**

McCormack, M. Looking at the Energy Realities With Congressman Mike McCormack **My 22**

McCullough, D. *(author)* The Path Between the Seas: The Creation of the Panama Canal (CB) **My 106**

McCullough, R. W. Design of High-Efficiency Flat Plate Solar Collectors for Space and Water Heating (78-DE-7) (A) **S 73**

McCune, J. E. Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**

McDonald, A. T. In Vivo Pressure Activity in the Canine Vas Deferens (77-WA/Bio-7) (A) **Ap 98**

McDonald, C. F. The Closed-Cycle Turbine—Present and Future Prospectives for Fossil and Nuclear Heat Sources (78-GT-102) (A) **Ag 108**; Nuclear Gas Turbine Power Plant Activities in the United States (77-JPGC-GT-5) (A) **Mr 93**; The Role of the Recuperator in High Performance Gas Turbine Applications (78-GT-46) (A) **Jl 92**

McDonough, J. M. The Longitudinal Water Boundary Layer Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**

McGehee, D. Y. The Prediction of Passenger Riding Comfort from Acceleration Data (77-WA/Aut-6) (A) **Je 102**

McGuigan, D. *(author)* Harnessing the Wind for Home Energy (CB) **D 97**

McKee, J. Development of LMFBR Steam Generator Leak Protection Systems (77-WA/NE-12) (A) **Je 102**

McKenney, L. D. Time-Phased Development Methodology—The Key For Reliable Engines in Future Military Aircraft Weapons Systems (78-GT-167) (A) **Ag 116**

McKinley, D. A. Thermal Transient Stress Analysis of Cylinder-to-Cylinder Structures by the Finite Plate Method (78-PVP-76) (A) **N 120**

McKnight, D. Development of a Compact Gas Turbine Combustor to Give Extended Life and Acceptable Exhaust Emissions (78-GT-146) (A) **Ag 114**

McLean, H. D. One Manufacturer's View of Gas Turbine Service (78-GT-49) (A) **Jl 93**

McLean, L. A. Ride Quality of Autorack Cars (77-WA/RT-7) (A) **Mr 85**

McNeese, L. E. Use of Thorium in Power Reactors (77-JPGC-NE-24) (A) **Mr 92**

McNichols, J. L. Low-Grade Thermal Energy-Conversion Joule Effect Heat Engines (78-ENAs-7) (A) **N 110**

McNutt, L. C. Nonlinear Transient and Spectrum Response Seismic Analysis of a Reactor Coolant Pump (78-PVP-36) (A) **O 105**

McRae, A. *(editor)* The Energy Source Book (CB) **Jl 100**

McTasney, R. Turbine Engine Automated Trim Balancing and Vibration Diagnostics (78-GT-129) (A) **Ag 112**

Meador, R. *(editor)* Perspectives on the Energy Crisis: Mankind's Energy Challenge, Fossil Fuels, Solar, Nuclear, Regional/National Responses (CB) **Ap 106**

Mean-Stress Criterion

A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) (A) **O 100**

Mean Temperature Measurements

Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) (A) **My 96**

Measured Crack Velocities

Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**

Measured Thermal Conductivities

Determination Tissue Perfusion from In Vivo Thermal Conductivity Measurements (77-WA/HT-40) (A) **My 99**

Measurement

The Torsional Response of Compressor Shaft Systems During Synchronous Motor Startups. Part II—Field Measurement Techniques (77-Pet-60) (A) **Ja 104**

Measurement Accuracy

Spectrometric Analysis of Residual Fuel (78-GT-93) (A) **Ag 107**

Measurement Equipment

Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/Sol-1) (A) **My 97**

Measurement Method

A Photoelastic Evaluation of the Method of Measuring Crack Arrest Toughness with a Tapered DCB Specimen (78-Mat-15) (A) **O 100**

Measurement Processes

Costs Down 20 Percent with Digital Readout (BTR) **Ap 52**

A Simple Method for Measuring and Monitoring Thermal Properties in Tissues (77-WA/HT-42) (A) **My 100**

A Technique for the Measurement of Burn Induced Leakage of Macromolecules in Living Tissue (77-WA/HT-46) (A) **My 100**

Measurement Reliability

Aerodynamic Development of Stages for Industrial Centrifugal Compressors. Part 1: Testing Requirements and Equipment—Immediate Experimental Evidence (78-GT-4) (A) **Jl 87**

An Automated Method for the Continuous Determination of Total Sodium in Fuel Oil (78-GT-92) (A) **Ag 107**

Low-Cost Test Procedure for Solar Collectors (77-WA/Sol-4) (A) **My 97**

Measurement System

Direct Blade Force Measurements in Transonic Cascade Flows (78-GT-45) (A) **Jl 93**

Measurement Techniques

Dynamic Response Testing of Gas Turbines (78-GT-31) (A) **Jl 90**

An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) (A) **F 131**

Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **Jl 87**

Recent Developments in Sensors for the Gas Turbine Engine (78-GT-52) (A) **Jl 94**

Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) (A) **Jl 89**

Techniques for Measuring Wheel/Rail Forces with Trackside Instrumentation (77-WA/RT-9) (A) **Mr 85**

Test Procedures for Establishing the Altitude Performance of Turbofan Engines to Validate Contractual Guarantees (78-GT-42) (A) **Jl 92**

Measurement Technology

Pressure Instrumentation for Gas Turbine Engines—A Review of Measurement Technology (78-GT-148) (A) **Ag 114**

Measurement Transducers

Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) (A) **Je 106**

Measurement Valve

Vaneless Diffuser Flow with Extremely Distorted Inlet Profile (78-GT-47) (A) **Jl 92**

Measurement Variability

The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) (A) **Ag 106**

Measurements

Downhole Measurements of Thermal Conductivity in Geothermal Reservoirs (77-Pet-23) (A) **Ja 100**

Measuring Machines

Coordinate Measuring Machines (IF) **D 48**

Measuring Surface Temperature

A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) (A) **F 132**

Measuring System

Deep Water Position Measuring System for Dynamically Positioned Ships (77-Pet-39) (A) **Ja 102**

Measuring Technique

Radioactive Wear Measuring (IF) **Je 65**

Mechanical Analysis

Mechanical Analysis of Steam Generator Tube Denting (78-NE-5) (A) **N 115**

Mechanical Components

Design of Mechanical Components Using Optimal Control (77-DET-46) (A) **Ja 111**

Mechanical Connection

The Elastallic Seal—A New Concept in Mechanical Connection of Marine Pipelines (77-Pet-84) (A) **Ja 107**

Mechanical Design

Alternative Closed-Cycle Gas Turbine System Design Considerations for Ship Propulsion Applications (78-GT-18) (A) **Jl 89**

Automating Mechanical Design Procedures (BTR) **F 54**

The Formal Tradeoff Study as a Mechanical Design Tool (78-DE-4) (A) **S 72**

Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) (A) **Ja 111**

Structural and Mechanical Design of Tokamaks (77-WA/NE-2) (A) **Je 100**

Mechanical Engineering

Mechanical Engineering for Professional Engineers' Examinations including Questions and Answers for Engineer-in-Training Review (CB) **S 78**

WPI Student Designs Typewriter to Aid Handicapped (EN) **My 75**

Mechanical Engineers' Handbook

Marks' Standard Handbook for Mechanical Engineers, Eighth Ed. (CB) **O 108**

Mechanical Error Analysis

Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) (A) **Mr 94**

Mechanical Face Seals

Design Considerations in Mechanical Face Seals for Improved Performance: Part 1 (77-WA/Lub-3) (A) **Jl 96**; Part 2 (77-WA/Lub-4) (A) **Jl 96**

Designing Mechanical Face Seals for Improved Performance: Part 1 - Basic Configurations **N 38**; Part 2—Lubrication **D 18**

Mechanical Heat-Storage Systems

"Rolling Cylinder" Heat Storage Device (BTR) **Mr 55**

Mechanical Interactions

Fuel Pin Bundle and Hexagonal Duct Mechanical Interaction (78-PVP-48) (A) **N 117**

Mechanical Joints

Dynamic Response Characteristics of Contact Separation in a Preloaded Mechanical Joint (78-DET-48) (A) **D 92**

Mechanical Operations

Review of Wear Problems in the Computer Industry (77-Lub-4) (A) **F 132**

Mechanical Properties

Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) (A) **Ja 101**

Mechanical Properties (CB) **My 106**

Properties of a Special A 387gr5 Steel (77-Pet-59) (A) **Ja 104**

Mechanical Pulping

An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) (A) **Je 107**

Mechanical Raise Boring

Economic Factors in Mechanical Raise Boring (77-Pet-29) (A) **Ja 101**

Mechanical Reliability

Mechanical Reliability Confidence Limits (77-WA/DE-12) (A) **Mr 94**

Mechanical Response

Non-Linear Lateral Mechanical Response of Pressurized Water Reactor Fuel Assemblies (77-WA/DE-18) (A) **Mr 95**

Mechanical Seals

Mechanical Seals (CB) **Je 114**

Mechanical Solar Tracker

Simple Mechanical Solar Tracker (BTR) **S 50**

Mechanical Stresses

Mechanical and Thermal Stresses in the Volute of a Pump Casing (78-PVP-45) (A) **N 117**

Mechanical Systems

Mechanical Systems for Handling Drill Pipe, Riser, and Casing (77-Pet-77) (A) **Ja 106**

Optimization of a Nonlinear Torsional Mechanical System (77-DET-107) (A) **F 125**

Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) (A) **Ja 108**

Mechanical Vibration
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) (A) **Ag 110**
Mechanically Induced Noise
Mechanically Induced Noise and Vibration in the Automotive Diesel Engine (77-DET-37) (A) **Ja 110**
Mechanics
Mechanics of Rotary Dressing of Grinding Wheels (77-WA/Prod-23) (A) **Je 105**
Mechanics Education
Survey of Ph.D Graduates in Mechanics (EN) **N 81**
Mechanism Case Studies
Mechanism Case Studies IV (78-DET-19) (A) **D 89**
Mechanism Optimization
Mechanism Optimization Via Optimality Criterion Techniques (78-DET-53) (A) **D 91**
Mechanisms
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) (A) **S 72**
Application of a Finite Element Computer Program for Investigating Failure Mechanisms in Military Ammunition (77-WA/DE-20) (A) **Mr 96**
Cam Mechanism Accuracy (77-WA/DE-19) (A) **Mr 95**
A Car Rocking Mechanism (77-WA/RT-11) (A) **Mr 85**
Control of Clearance Effects (77-WA/DE-2) (A) **Mr 93**
Dynamic Accuracy of Hybrid Profiling Mechanisms in Cam Manufacturing (77-WA/DE-3) (A) **Mr 93**
Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**
Machines and Mechanisms: 1979 World Congress in Montreal (NR) **N 76**
Model Formulation of Complex Mechanisms With Multiple Inputs Part I—Geometry (77-WA/DE-9) (A) **Mr 94**; Part II—The Dynamic Model (77-WA/DE-10) (A) **Mr 94**
Optimum Synthesis of Mechanisms Using Heuristics for Decomposition and Search (78-DET-5) (A) **D 88**
Pattern Control System Requirements for an Electronic Consumer Sewing Machine (78-DE-12) (A) **S 72**
Medical Research
Numerical Linearization of Themistor Bridge Circuits for in Vivo Medical Research (77-WA/Bio-14) (A) **Ap 99**
Medina, F. D. Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) (A) **Mr 86**
Meece, C. E., Jr., Time-Phased Development Methodology—The Key for Reliable Engines in Future Military Aircraft Weapons Systems (78-GT-167) (A) **Ag 116**
Megyesy, E. F. *(author)* Pressure Vessel Handbook (CB) **F 136**
Mehta, R. K. The Dynamic Characteristics of O-Rings (77-DET-27) (A) **Ja 110**
Melted Water Layer
Heat Transfer and Onset of Convection in a Melted Water Layer (78-HT-41) (A) **O 97**
Melting
Critical Steady-State Heat Fluxes Causing Melting or Evaporation of the Anode in a High Intensity Arc (78-HT-10) (A) **O 93**
Experiments on the Role of Natural Convection and Heat Source Arrangement in the Melting of a Solid (78-HT-47) (A) **O 97**
A Two-Dimensional Numerical Solution to Freezing/Melting in Cylindrical Coordinates (77-WA/HT-11) (A) **Ap 102**
Melting Process
Solid Waste Treatment Plant (IF) **Jl 54**
Meltzer, L. A. On Consensus and Policymaking (C) **Je 52**
Memarzadeh, M. A. The Wind, a Low-Grade Energy Source (77-WA/Ener-4) (A) **My 93**
Membership
First Face Facts (C) **Ja 51**
Mende, H. Evolution of Radwaste Evaporators in West Germany (77 JPGC-NE-13) (A) **Mr 91**
Mendelson, A. Stress Analysis and Stress-Intensity Factors for Finite Geometry Solids Containing Rectangular Surface Cracks (77-WA/APM-5) (A) **Jl 97**
Mendelssohn, K. *(author)* The Quest for Absolute Zero: The Meaning of Low Temperature Physics (CB) **Mr 100**
Meniscus Profile
An Evaporating Ethanol Meniscus: Part 1—Experimental Studies (78-HT-29) (A) **O 95**
Mercier, R. J. Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) (A) **Je 106**
Meredith, D. Computer Code for Predicting the Dynamic Response of High Energy Piping, Pressure Vessels, and Shell Structures Subjected to Transient Loads and Impacts (78-PVP-33) (A) **N 116**; Transient Response of Thin, Thick, or Sandwich Shells and Pressure Vessels Subjected to Transient Loads (78-PVP-35) (A) **N 116**
Merrick, G. J. The Merrick "Hot Piper" Automated Pipe Welding System (77-Pet-62) (A) **Ja 104**
Merrill, M. H. Alternate Fuel Cycles in HTGR's (77-JPGC-NE-26) (A) **Mr 92**
Merson, J. L. Seismic Response of a Block Type Nuclear Reactor Core (77-DET-138) **F 128**
Mesh Refinement
Grid Selection and Refinement Procedures in Finite Element Analysis (78-DE-21) (A) **O 92**
Mesh Size
The Dependence of the CO_2 Removal Efficiency of LiOH on Humidity and Mesh Size (78-ENAs-5) (A) **N 110**
Metal Bending
Confined and Unconfined Elastomer Dies for Metal Bending (78-DE-11) (A) **S 72**
Metal Cutting
Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) (A) **F 129**
Metal Elements
Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) (A) **Je 109**
Metal Fatigue
Spring Fatigue Recommended Design Stresses (78-DE-5) (A) **S 73**
Metal Flow
A Numerical Method for Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) (A) **Je 107**
Metal Recycling
Inexpensive Metal Recycling (BTR) **N 66**
Metal Seal Ring
The Elastalic Seal—A New Concept in Mechanical Connection of Marine Pipelines (77-Pet-84) (A) **Ja 107**
Metallic Corrosion
The High Cost of Corrosion (BTR) **My 61**
Metallic Oxide Coatings
The Design and Development of Heated, Impact Resistant Windshields for Locomotives (78-RT-5) (A) **O 90**
Metallic Recuperators
Compact Metallic and Ceramic Recuperators for Gas Turbines (78-GT-62) (A) **Jl 95**
Metallic Structures
Fatigue Crack Propagation in 8 and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) (A) **Je 109**
Metals
Erosion-Corrosion Effects on Boiler Tube Metals in a Multisolids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**
Good Breaks! (BTR) **Ag 59**
Helium Blistering in Metals (78-Mat-5) (A) **O 99**
Shaping Metals—A New Way (BTR) **Ap 49**
Metalworking
Metalworking: Yesterday and Tomorrow (CB) **O 107**
Principles of Industrial Metalworking Processes (CB) **Je 114**
Metalworking Products
Metalworking '78 (IF) **Mr 59**
Metalworking Research
North American Metalworking Conference (NR) **Ap 69**
Metering Pumps
Metering and Proportioning Pumps Market to Grow 52 Percent (NB) **D 58**
Meters
Fuel Efficiency Meters (IF) **Ja 68**
Methacoal
Methacoal—Waterless Coal Slurry (BTR) **Ap 47**
Methanol
A Major Methanol Facility (ES) **Jl 22**
New Horizons for Methanol (ES) **O 46**
Methodologies
Improving U.S. Productivity, Part 3 - Methodologies for Boosting Productivity **N 47**
Methods-Time Measurement
Engineered Work Measurement (CB) **My 106**
Metric Conversion
Alert Reader (C) **O 45**
Going Celsius by Degrees (NR) **O 66**
Metric Action Around the World (NR) **Mr 64**
Metric Standards
World Metric Standards for Engineering (CB) **D 96**
Metric System
Metric Song (C) **Mr 47**
Senate Confirms U.S. Metric Board (NR) **My 71**
Metric Usage
Metric Dozen? (C) **Mr 47**
Metwalli, S. M. New Optimization Techniques (77-DET-169) (A) **F 130**; Optimum Design of Uniform-Section Disk Springs Under Various Constraints (77-WA/DE-22) (A) **Mr 96**
Metzer, D. E. Jet Cooling at the Rim of a Rotating Disk (78-GT-25) (A) **Jl 89**
Meyer, F. J. Design and Development of a Low Emission Combustor for a Car Gas Turbine (78-GT-155) (A) **Ag 115**
Meyer, R. H. Ten Years' Engineering Development in Gas Turbine Driven Natural Gas Compressor Stations (78-GT-74) (A) **Jl 96**; Test Results of a New Distillate Fuels Purification System (78-GT-203) (A) **S 77**
Meyers, R. A. *(author)* Coal Desulfurization (CB) **My 106**
Michael, G. J. Development of Gas Turbine Performance Seeking Logic (78-GT-13) (A) **Jl 88**
Michael, S. Analysis of Pneumatically Driven Double-Acting Reciprocating Pumps (78-DE-19) (A) **O 91**
Micro-bit Drill
Techniques of Pilot-Scale Drilling Research (77-Pet-68) (A) **Ja 105**
Micro-Computer Technology
A Digital Approach to Industrial Gas Turbine Control (78-GT-39) (A) **Jl 91**
Microbial Check Valve
Microbial Check Valve for Shuttle (78-ENAs-27) (A) **N 112**
Microbial Desulfurization
Microbial Desulfurization of Coal (BTR) **D 46**
Microbial Vegetation
Life Found in Mars-Like Climate (BTR) **Ap 59**
Microcomputers
Low-Cost Microcomputer (BTR) **S 51**
Microcomputer Implementation of Direct Digital Control Algorithms for Thermal Process Control Applications (77-WA/Aut-3) (A) **Je 102**
Process Control Equipment Will Double (NB) **Ag 74**
Microelectronics Development
Military Engine Usage Monitoring Developments in the United Kingdom (78-GT-65) (A) **Jl 95**
Microprocessor-Based Computer
Decometer: A Microprocessor-Based Decompression Computer for Divers (77-WA/Oce-8) (A) **Ap 93**
Microprocessor-Controlled Manipulator
A Powered Medical Manipulator for the High Spinal Cord Injured Person (77-WA/Bio-13) (A) **Ap 99**
Microprocessor Technology
Getting Executives Involved in Microprocessor Selection (NB) **Mr 65**
Microprocessors
European Process Control Market (IF) **Ag 67**
A Microprocessor Based Hierarchical Control System for Gas Turbines (78-GT-124) (A) **Ag 111**
Microprocessors Capture Limelight at Silver Jubilee **Je 82**
Microprocessors Featured at Design Engineering Conference and Show **Mr 76**
Microprocessors in Instruments and Control (CB) **Ap 107**
A Specialized Microprocessor System for Decompression Management of Deep Diving (77-WA/Oce-7) (A) **Ap 93**
Tool-Changing Robot (BTR) **O 56**
Microwave Beam
A Stand on Satellites (C) **My 50**
Microwave Measurement Techniques
The Moon Through a Fly's Eye (BTR) **Jl 46**
Microwaves
Topical Heat Waves (BTR) **Je 61**
Midha, A. A Closed-Form Numerical Algorithm for the Periodic Response of High-Speed Elastic Linkages (78-DET-15) (A) **D 89**; A Computationally Efficient Numerical Algorithm for the Transient Response of High-Speed Elastic Linkages (78-DET-54) (A) **D 93**
Mii, T. An Analytical Method for Fixed Tubesheet Heat Exchangers and Its Experimental Verification (78-PVP-77) (A) **N 120**
Miles, J. Experimental Investigation of Simulated Helicopter Fuel Cell Impact Phenomenon (78-DET-79) (A) **D 95**

Military Aircraft Weapons
Time-Phased Development Methodology—The Key for Reliable Engines In Future Military Aircraft Weapons Systems (78-GT-167) (A) **Ag 116**
Military Ammunition
Application of a Finite Element Computer Program for Investigating Failure Mechanisms in Military Ammunition (77-WA/DE-20) (A) **Mr 96**
Military Engines
Military Engine Usage Monitoring Developments in the United Kingdom (78-GT-65) (A) **Jl 95**
Miller, A. K. The Influence of Material Variability on the Predicted Environmental Behavior of Composite Materials (77-WA/Mat-9) (A) **Je 109**
Miller, C. A. Locating Pipe Supports for Combined Thermal and Seismic Loading (77-PVP-63) (A) **Ja 108**
Miller, L. M. *(author)* Behavior Management: New Science of Managing People at Work (CB) **D 96**
Miller, R. J. Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**
Miller, R. K. The Steady-State Response of Systems With Hardening Hysteresis (77-DET-71) (A) **Ja 109**
Milling
Analytical Prediction of Three-Dimensional Cutting Process—Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) (A) **My 103**
Mills, R. G. Tokamak Reactors (77-WA/NE-3) (A) **Je 100**
Milner, J. R. Topological Reaction Force Analysis (78-DET-58) (A) **D 93**
Min, B. K. The Effect of Cycle Shape on Creep-Fatigue Interaction in Austenitic Stainless Steels (78-PVP-89) (A) **N 122**
Minagawa, S. On Harmonic Waves in Layered Composites (77-WA/APM-30) (A) **Jl 99**
Minalga, P. F. A Servo Control System Design for Electronic Pattern Control in a Consumer Sewing Machine (78-DE-14) (A) **S 74**
Mineral Waste
Mineral Waste Disposal Options (NB) **My 72**
Minerals
Derivation of Cost Factor for Novel Mining Energy Source Minerals (77-Pet-46) (A) **Ja 103**
Mines
Electricity in Rocks May Help Prevent Mine Disasters (EN) **Je 76**
Miniature Fasteners
Cold-Head Miniature Fasteners (BTR) **D 44**
Minorities Program
Bethlehem Steel Launches Minorities Program (EN) **Jl 63**
Minority Engineering
ASCE Gives Qualified Support to Minority Engineering and Construction Quotas (NR) **D 56**
Minorities in Engineering Symposium Sets 5 Year Goal (EN) **D 59**
Minuti, D. Costs and Causes of Maintenance in a Ship's Diesel Propulsion System (77-WA/Lub-2) (A) **Jl 96**
Mikielewicz, J. Experimental Study of Evaporation and Breakdown of Thin Liquid Films Driven by Shear Stresses (77-WA/HT-7) (A) **Ap 102**
Miletti, D. L. Evaporative Heat Transfer and Pressure Drop Performance of Internally-Finned Tubes with Refrigerant 22 (77-WA/HT-25) (A) **Ap 104**
Military Installation
Fort Hood Goes Solar (ES) **Jl 22**
Minicomputer Technology
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/Prod-19) (A) **Je 105**
Minicomputers
Minicomputers Turn to Steel Wire Frames (BTR) **Ja 60**
Ultrasonic Data Acquisition, Analysis, and Display by Minicomputer Aided Techniques (77-PVP-45) (A) **Ja 108**
Mining
U.S. Longwall Mining System (BTR) **Je 59**
Mining Energy Source Minerals
Derivation of Cost Factor for Novel Mining Energy Source Minerals (77-Pet-46) (A) **Ja 103**
Mining Industries
Mineral Waste Disposal Options (NB) **My 72**
Mining and Metallurgy
Mining and Metallurgy in the Greek and Roman World (CB) **Je 114**
Mining Practices
Economic Factors in Mechanical Raise Boring (77-Pet-29) (A) **Ja 101**
Mining Technology
Uranium Solution Mining—State of the Art (77-Pet-47) (A) **Ja 103**
Minority Engineers
Status of Minority and Women Ph.D.'s in the 1970s (EN) **F 68**
Miranda, C. F. An Optimization Strategy for Control of SO_x from Coal-Fired Power Plants (77-JPGC-Pwr-16) (A) **Mr 89**; Simplex Solution of Magnel's Method of Prestressed Concrete Beam Design (77-DET-109) (A) **F 125**
Mirror Components
Reflections on Mirrors (BTR) **Jl 50**
Mirror Segments
Optical Design and Performance of an Inverted, Segmented Mirror Solar Concentrator (78-HT-32) (A) **O 96**
Mishina, H. Performance Investigations of Large Capacity Centrifugal Compressors (78-GT-3) (A) **Jl 87**
Miskolczy, G. Thermionic Energy Conversion Topping System (77-WA/Ener-6) (A) **My 94**
Misra, A. K. Dynamics of a Neutrally Buoyant Inflatable Oceanographic Platform (77-DET-139) (A) **F 128**
Missile Seeker
Missile Seeker Can Penetrate Fog (BTR) **Ap 61**
Missiles
An Approach to Solving Controls Compartment Heating Problems on Air-Launched Missiles (78-ENAs-12) (A) **N 111**
Zaps Low Sneak Attack (BTR) **Ja 64**
Mitchell, L. D. Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-68) (A) **Ja 105**
Mitchell, N. A. Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**
Mitchell, W. S. Application of Nonseries Airfoil Design Technology to Highly Loaded Turbine Exit Guide Vanes (78-GT-108) (A) **Ag 109**
Mixed Convection Analysis
Analysis of Mixed Convection About a Sphere with Uniform Surface Heat Flux (77-WA/HT-1) (A) **Ap 101**
Mixed Dynamic System
Model Verification of Mixed Dynamic Systems (77-DET-85) (A) **F 123**
Miyake, M. Research of the XF3-1 Turbofan Engine (78-GT-199) (A) **S 76**
Miyoshi, E. Development of Sumitomo High Toughness Process (SHT) for Arctic Grade Line Pipes (77-Pet-61) (A) **Ja 104**
Mizuki, S. Investigation Concerning Rotating Stall and Surge Phenomena within Centrifugal Compressor Channels (78-GT-9) (A) **Jl 87**
Mizutani, H. Remotely Operated Ultrasonic Testing System (78-NE-3) (A) **N 114**; Transmission Errors and Noise of Spur Gears Having Uneven Tooth Profile Errors (77-DET-51) (A) **Ja 112**
Mobile Diving Unit
Undersea Work System (BTR) **N 62**
Modak, J. P. Experimental Kinematic Analysis and a New Technique of Synthesis of an Elastic Four Bar Chain (78-DET-63) (A) **D 94**
Modal Summing Rules
Modal Summing Rules for Seismic Qualification (78-PVP-32) (A) **O 105**
Modal Superposition Methods
Modal Superposition Method for Computationally Economical Nonlinear Structural Analysis (78-PVP-70) (A) **N 120**
Model Formulation
Model Formulation of Complex Mechanisms With Multiple Inputs: Part I—Geometry (77-WA/DE-9) (A) **Mr 94**
Model Pressure Vessel Tests
Fracture Mechanics Analysis of JAERI Model Pressure Vessel Test (78-PVP-91) (A) **N 122**
Modest, M. F. Thermal Design Criteria for Solar Hot Water Systems in Tropical Climates (78-HT-37) (A) **O 95**
Modi, V. J. Dynamics of a Neutrally Buoyant Inflatable Oceanographic Platform (77-DET-139) (A) **F 128**; Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) (A) **F 124**; On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) (A) **F 123**
Modular Analog System
A Microprocessor Based Hierarchical Control System for Gas Turbines (78-GT-124) (A) **Ag 111**
Modular Industrial Turbine
The Energy Saver Combined Cycle (78-GT-127) (A) **Ag 112**
Modular Reactors
A 400-MW Modular Reactors
Moe, G. Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) (A) **Ja 115**
Moffat, R. J. The Structure of a Boundary Layer on a Rough Wall with Blowing and Heat Transfer (78-HT-3) (A) **O 92**
Mogul, J. M. Design of a High Efficiency Combined Cycle Electric Power Plant for Low Btu Coal-Gas (78-GT-125) (A) **Ag 111**
Mohamed, M. A. Stress Intensity Factor Calculations for Circular Cracks at the Intersections of Pressurized Cylindrical Shells (78-PVP-24) (A) **O 104**
Mohamed, M. H. The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) (A) **F 132**
Moisture Migration
Transient Heat and Mass Transfer in Soils (78-HT-31) (A) **O 95**
Molecular Gas Laser
High-Power Laser (BTR) **F 53**
Molecular Gases
Comparison of Analytical Model with Approximate Models for Total Band Absorption and its Derivative (78-HT-15) (A) **O 93**
Mollendorf, J. C. Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) (A) **Je 106**
Molten-Carbonate CO_2 Concentrator
Molten-Carbonate CO_2 Concentrator: Preliminary Experiments (78-ENAs-2) (A) **N 110**
Monello, J. A. Application of Nonseries Airfoil Design Technology to Highly Loaded Turbine Exit Guide Vanes (78-GT-108) (A) **Ag 109**
Monitoring
Monitoring Underground Nuclear Explosions (CB) **Jl 100**
Monitoring Equipment
Military Engine Usage Monitoring Developments in the United Kingdom (78-GT-65) (A) **Jl 95**
Monitoring Systems
Real-Time Monitoring of Crustal Deformations (BTR) **O 54**
Monobloc Vessels
Thoughts on a Code of Practice for Forged High Pressure Vessels of Monobloc Design (78-PVP-62) (A) **N 119**
Monotonic Tension
Experimental Investigation of the Angled Elliptic Notch Problem in Tension (77-WA/APM-6) (A) **Je 111**
Montakhab, A. Convective Heat Transfer in Porous Media (78-HT-45) (A) **O 96**
Moon, F. C. Experiments on Buckling and Vibration of Superconducting Coils (77-WA/APM-28) (A) **Jl 99**
Moore, N. B. A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) (A) **Ja 103**
Moore, N. D. Fume Formation in Ammonia Scrubbers (77-WA/APC-2) (A) **My 101**
Moore, W. L. Low-Cycle Fatigue and Ultimate Strength Related to Gear Design (77-DET-66) (A) **Ja 113**
Moradi, J. Y. A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) (A) **Ja 111**
Moran, B. A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) (A) **O 100**
Morasky, T. M. TVA's Cocurrent Scrubber Evaluation (77-WA/APC-8) (A) **My 102**
Morehouse, J. H. A "No-Flow" Method for Measuring Solar Collector Performance (77-WA/Sol-5) (A) **My 97**
Morgan, G. W. Force Systems Acting on Arbitrarily Directed Tubular Members in the Sea (77-Pet-38) (A) **Ja 102**
Morgan, H. S. Buckling of Rectangular Cross-Ply Laminated Plates with Nonlinear Stress-Strain Behavior (78-PVP-64) (A) **N 119**
Morgan, J. S. *(author)* Robert Fulton (CB) **Ap 106**
Moriarty, M. P. An Experimental Evaluation of the Flow Distribution in the CRBRP Modular Steam Generator (77-JPGC-NE-12) (A) **Mr 91**
Morizumi, S. J. Comparison of Analytical Model with Approximate Models for Total Band Absorption and its Derivative (78-HT-15) (A) **O 93**
Morris, A. W. H. A High Temperature Turbine Research Module (77-GT-73) (A) **Ag 105**
Morris, J. U. Wind Power Prices (C) **Ap 45**
Morrison, J. J_{IC} Determination Using the Proposed Stand-

ard C-Shaped Specimen (78-Mat-6) (A) **O 99**

Morrison, R. M. An Optimization Strategy for Control of SO_x from Coal-Fired Power Plants (77-JPGC-Pwr-16) (A) **Mr 89**

Morrison Seal
Morrison and Parry Seals for Water Pressures up to 345 MPa (78-PVP-13) (A) **O 103**

Moses, J. L. Atmosphere Cloud Physics Laboratory Thermal Control (78-ENAs-9) (A) **N 111**

Mosier, J. E. Train Dynamics Analyzer: A Training Simulator for Locomotive Engineers (77-WA/RT-10) (A) **Mr 85**

Moskowitz, D. Optimal Edge Geometry for Maximum Tool Life (77-WA/Prod-43) (A) **Je 108**

Moskowitz, S. Design of a Pressurized Fluid Bed Coal Fired Combined Cycle Electric Power Generation Plant (78-GT-135) (A) **Ag 113**

Moskowitz, S. L. Transpiration Air Protected Turbine Blades—An Effective Concept to Achieve High Temperature and Erosion Resistance for Gas Turbines Operating in an Aggressive Environment (78-GT-100) (A) **Ag 108**

Mote, C. D., Jr. Feedback Control of Saw Blade Temperature with Induction Heating (77-WA/Prod-22) (A) **Je 105**

Motion
Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) (A) **Ja 108**

Motion Analysis
A Motion Analysis of a Riser Upper Joint Interacting with a Floating Vessel (77-Pet-40) (A) **Ja 102**

Motion Control Devices
Serge in Motion Control, Valves, and Welding (NB) **S 59**

Motion Equations
Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) (A) **Ja 114**

Motion-Limiting Stop
Analytical and Experimental Studies of a Dynamic System with a Gap (77-DET-89) (A) **Ja 115**

Motive Power Designs
Progress in Railway Mechanical Engineering 1976-1977 Report of Survey Committee Locomotives (77-WA/RT-12) (A) **Mr 85**

Motor Behavior
Cybernetic Considerations in the Use of Myoelectric Activity for Prosthesis Control (77-WA/Bio-10) (A) **Ap 98**

Motor Cars
Making of the Motor Car (CB) **Ji 100**

Motor-Gear-Compressor Systems
Coupling Selection for Synchronous Motor Drive System (77-DET-131) (A) **F 127**

Motor Pump
Submersible Motor Pump (IF) **Je 64**

Motors
Gearless Speed-Reduction Motor (BTR) **Ap 58**
Torsional Response of Compressor Shaft Systems During Synchronous Motor Startup. Part I—Analytical Model (77-Pet-49) (A) **Ja 103**; Part II—Field Measurement Techniques (77-Pet-60) (A) **Ja 104**; Part III—Abnormal Motor Conditions (77-Pet-56) (A) **Ja 104**

Mottley, H. E., Jr. *(author)* Quality Control for Profit (CB) **Je 113**

Mottram, A. W. T. The Compact Industrial Gas Turbine—Recent Technical Improvements (78-GT-41) (A) **Ji 91**

Mounted Structures
Vibration of Beams and Plates with Edges Elastically Restrained Against Rotation Carrying Elastically Mounted Masses (77-DET-87) (A) **F 122**

Moussa, N. A. Kinetics of Thermal Injury of Cell Populations Exposed to Supraphysiological Temperatures (77-WA/HT-44) (A) **My 100**

Movable Pallets
Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/Prod-32) (A) **Je 107**

Moving Band
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) (A) **Je 106**

Moving Fluids
Transient Temperature Measurement in Moving Fluids (77-WA/TM-3) (A) **My 96**

Moving Loads
Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) (A) **Ja 114**
Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) (A) **Ja 114**

Moving Planes
Symmetrical Algebraic Motions in the Plane (78-DET-40) (A) **D 92**

Moving Surface
Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) (A) **Mr 86**

Mraz, G. J. Design, Manufacture and Safety Aspects of Forged Vessels for High-Pressure Services (78-PVP-72) (A) **N 120**

Mruk, G. Torsional Response of Compressor Shaft Systems During Synchronous Motor Startup. Part I—Analytical Model (77-Pet-49) (A) **Ja 103**; Part II—Field Measurement Techniques (77-Pet-60) (A) **Ja 104**; Part III—Abnormal Motor Conditions (77-Pet-56) (A) **Ja 104**

Mruthyunjaya, T. S. Computer-Aided Synthesis of a Two-Degree-of-Freedom Planar Linkage for Function Generation (78-DET-30) (A) **D 90**; Structural Analysis of Kinematic Chains and Mechanisms Based on Matrix Representation (78-DET-29) (A) **D 90**

Mucoglu, A. Analysis of Mixed Convection About a Sphere with Uniform Surface Heat Flux (77-WA/HT-1) (A) **Ap 101**

Mudpump Ends
Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Ends (77-Pet-42) (A) **Ja 101**

Mukherjee, B. Residual Fatigue Life Determination of Anchor Bolts (78-Mat-8) (A) **O 99**

Mukherjee, D. K. Stresses in Turbine Blades Due to Temperature and Load Variation (78-GT-158) (A) **Ag 115**

Mulholland, G. P. Heat Transfer in Multiply Connected Regions (77-WA/HT-15) (A) **Ap 103**

Mulik, R. Investigating Combustion Turbine Burner Performance with Coal Derived Liquids Having High Fuel Bound Nitrogen (78-GT-126) (A) **Ag 111**

Multicored Sandwich Beams
Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) (A) **Ja 114**

Multi-Mission Patrol Ship
Propulsion System Design for the Multi-Mission Patrol Ship Mart 1/1A (78-GT-182) (A) **S 75**

Multiparameter Optimization
Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) (A) **F 131**

Multipass Welds
Computation of Residual Stresses Due to Multipass Welds in Piping Systems (78-PVP-104) (A) **N 124**

Multiple Cylinder Refrigeration Compressor
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) (A) **S 74**

Multiple-Injury Failure
Tool Life Distributions: Part 4—Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) (A) **Je 108**

Multiple Penetrations
Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) (A) **Ap 92**

Multiple Scattering
A Self-Consistent Approach to Multiple Scattering by Elastic Ellipsoidal Inclusions (77-WA/APM-25) (A) **Ji 98**

Multiple Stack Power Plant
Ambient Ground-Level Sulfur Dioxide Concentrations in the Vicinity of a Multiple Stack Power Plant During and After Operation (77-WA/APC-4) (A) **My 102**

Multiply Connected Regions
Heat Transfer in Multiply Connected Regions (77-WA/HT-15) (A) **Ap 103**

Multi-Ply Patchwork
Single-Unit Conveyor Belt Avoids Multi-Ply Patchwork (BTR) **D 44**

Multiring Flywheel
Stress Redistribution for the Multiring Flywheel (77-WA/DE-26) (A) **Mr 96**

Multi-Rotor Systems
The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) (A) **Ja 111**

Multirow Holes
Film Cooling Effectiveness for Injection From Multirow Holes (78-GT-32) (A) **Ji 90**

Multisolids Fluidized-Bed
Erosion-Corrosion Effects on Boiler Tube Metals in a Multi-solids Fluidized-Bed Coal (77-WA/CD) (A) **My 101**

Multistage Turbomachine
Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **Ji 87**

Mulville, D. R. Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) (A) **Je 110**; Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) (A) **Je 110**

Munn, W. I. Atomic Issues (Cont'd.) (C) **Ag 53**

Mura, T. The Elastic Field Outside an Ellipsoidal Inclusion (77-WA/APM-29) (A) **Ji 99**

Murashima, K. Research of the XF3-1 Turbofan Engine (78-GT-199) (A) **S 76**

Murdock, J. W. The Near-Field Disturbance Created by a Body in a Stratified Medium With a Free Surface (77-WA/APM-18) (A) **Ji 98**

Murphy, H. D. Downhole Measurements of Thermal Conductivity in Geothermal Reservoirs (77-Pet-23) (A) **Ja 100**

Murphy, P. M. The Breeder — Now or Never **S 22**

Murray, T. Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/Prod-27) (A) **Je 106**; Mechanics of Rotary Dressing of Grinding Wheels (77-WA/Prod-12) (A) **Je 105**

Muscle Force
Determining Muscle Forces in the Leg During Normal Human Gait—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) (A) **Ap 98**

Myers, G. E. The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat Conduction Transients (77-WA/HT-14) (A) **Ap 103**

Myoelectric Activity
Cybernetic Considerations in the Use of Myoelectric Activity for Prosthesis Control (77-WA/Bio-10) (A) **Ap 98**

N

Na, T. Y. On Elasto-Plastic Column Design (77-WA/DE-17) (A) **Mr 95**; An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) (A) **Mr 94**

Nachbar, W. Stable Postbuckling Equilibria of Axially Compressed, Elastic Circular Cylindrical Shells: A Finite-Element Analysis and Comparison With Experiments (77-WA/APM-9) (A) **Ji 97**

Nachtigal, C. L. Application of the Regeneration Spectrum to the Design of Machine Tool Chatter Control Systems (77-WA/Aut-8) (A) **Je 103**; Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) (A) **Je 108**; Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) (A) **Je 108**; The Regeneration Spectrum—A New Tool for the Stability Analysis of a Class of Linear Time Delayed Systems (77-WA/Aut-9) (A) **Je 103**

Nader, R. *(author)* The Menace of Atomic Energy (CB) **My 105**

Naesheim, K. Operating Experience with the Gas Turbine Powered LNG/Ethylene Carrier "Lucian" (78-GT-35) (A) **Ji 91**

Nagano, K. Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) (A) **F 122**

Nagaraj, H. S. Asperity Interactions in EHD Contacts (77-Lub-19) (A) **Mr 86**

Nagata, S. Interface Pressure Distribution in a Bolt-Flange Assembly (77-WA/DE-11) (A) **Mr 94**

Naghdi, A. K. Torsion of Bars of Solid Polygonal and Hollowed Polygonal-Circular Cross Sections (77-WA/DE-27) (A) **Mr 96**

Naghdi, P. M. Water Waves in a Nonhomogeneous Incompressible Fluid (77-WA/APM-27) (A) **Ji 99**

Nagpal, V. A Numerical Method for Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) (A) **Je 107**

Nagy, K. Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) (A) **Mr 84**

Nahavandi, A. N. Modal Superposition Method for Computationally Economical Nonlinear Structural Analysis (78-PVP-70) (A) **N 120**

Nair, P. K. Fatigue Crack Growth Model for Part-Through Flaws in Plates and Pipes (78-Mat-9) (A) **O 99**

Nakajima, M. Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/Prod-32) (A) **Je 107**

Nakamura, G. Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**

Nakano, M. Acoustic Emission Monitoring During Rupture Test of Pressure Vessel and Laboratory Fracture Test (78-PVP-18) (A) **O 104**

Nakas, Y. A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbines (78-GT-132) (A) **Ag 112**

Nakayama, T. Experimental Study of Diffusers for Mixed-Flow Machines (78-GT-120) (A) **Ag 110**

Nara, Y. Study on the Resistivity of Various Types of Steels Against Propagating Shear Fracture by Modified West Jefferson Type Burst Test (78-PVP-71) (A) **N 120**

Narayanan, T. V. Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) (A) **O 101**

Narrow Passages
Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) (A) **Mr 86**

National Aeronautics & Space Administration
Convert Laser Power to Electrical Power (BTR) **Je 59**
Earth's Largest Space Museum (NR) **Mr 62**
Experiments Selected for 1980 Shuttle Flight (BTR) **Ap 56**
A Facelift for NASA (NB) **Ja 77**
Life Found in Mars-Like Climate (BTR) **Ap 59**
NASA Celebrates 20th Anniversary (NR) **N 78**
NASA Studies Possibilities for Skylab Re-Use (BTR) **Je 60**
NASA's Library for Lease (TL) **Ag 118**
Search for Extraterrestrial Intelligence (BTR) **My 54**
Science Experiments Chosen for Shuttle Facility (BTR) **My 56**
Solar Cells Now Power Weather Stations (BTR) **Ap 54**
Tilt Rotor Research Aircraft (BTR) **Je 55**

National Association of Purchasing Management
Business in '78 (NB) **Ja 77**

National Bureau of Standards
Computer-Generated Cryptography for Data Security (BTR) **Mr 54**
The High Cost of Corrosion (BTR) **My 61**
Materials That Perform Under Pressure (BTR) **My 60**

National Coal Association
Coal for Utilities (ES) **Ja 19**
Coal's Not Controlled (ES) **Ja 18**

National Energy Plan
An Analysis of ERDA's National Energy Plan (77-WA/TS-2) (A) **My 98**
Transportation Energy Conservation Data Book (CB) **My 105**

National Energy Policy
The Evolution of Conservation as a Key Element of National Energy Policy (77-WA/TS-3) (A) **My 98**
Whatever Happened to the National Energy Policy? (WW) **Ja 80**

National Fire Safety Standards
New Fire Safety Standards (ES) **O 47**

National Nominating Committee
Help! National Officer Proposals Needed **F 114**

National Nominations
National Nominations—Speak for Your Candidate **My 84**

National Railroad Conference
St. Paul Hosts Railroad Conference (NR) **Mr 63**

National Research Council
Aquaculture Needs Development (NB) **Mr 65**
Find Hanford Wastes Not Hazardous (BTR) **Je 55**
Research Associateships (EN) **Ja 78**
Status of Minority and Women Ph.D.'s in the 1970s (EN) **F 58**
Strategic Reserve of Helium Proposed (BTR) **My 58**

National Resources
Free Enterprise is Best! (ES) **O 47**

National Science Foundation
Career Development Programs (EN) **F 68**
Electricity in Rocks May Help Prevent Mine Disasters (EN) **Je 76**
Graduate Science Enrollment Stabilized in 1977 (EN) **O 69**
ISP Offers Innovative Approach to Education (EN) **Ap 75**
NSF Student Science Training Program (EN) **Ji 63**
Socio-Technical Project (EN) **My 74**

National Science Foundation Grant
Fast-Track II Free for Women Engineers (EN) **N 81**

National Society of Professional Engineers
NSPE Urges Action on Nuclear Waste Disposal (NB) **N 79**

Natural Convection
Effect of Stabilizing Thermal Gradients on Natural Convection in Rectangular Enclosures (78-HT-42) (A) **O 97**
Experiments on the Role of Natural Convection and Heat Source Arrangement in the Melting of a Solid (78-HT-47) (A) **O 97**
Natural Convection from a Vertical Isothermal Surface Imbedded in a Saturated Porous Medium (78-HT-55) (A) **O 97**
Natural Convection Heat Transfer in Beds of Inductively Heated Particles (77-WA/HT-2) (A) **Ap 101**
Natural Convection Turbulent Boundary Layers Next to Heated Vertical Surfaces (77-WA/HT-32) (A) **Ap 105**
Three-Dimensional Natural Convection in a Confined Porous Medium Heated from Below (78-HT-56) (A) **O 98**

Natural Frequencies
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) (A) **Je 105**
Experiments on Buckling and Vibration of Superconducting Coils (77-WA/APM-28) (A) **Ji 99**
Modeling and Analysis for Seismic Adequacy in Air Handling Unit Enclosures—The Effects of Structural Reinforcement (77-DET-136) (A) **F 127**
A Simplified Method for Calculating the Natural Frequency of Valve Superstructures (78-PVP-4) (A) **O 102**
Transverse Vibrations of Cantilever Beams Having Unequal Breadth and Depth Tapers (77-WA/APM-19) (A) **Ji 98**

Natural Gas
Ceramic Heat Exchangers May Save Petroleum (BTR) **F 59**
Clean Coal Replaces Natural Gas in Kansas (BTR) **D 43**
Conversion of Gas Pipeline to Liquids Service (77-Pet-18) (A) **Ja 100**
Evaluation of Two Industrial Boilers with Combustion Modifications for Reduced Pollutant Emissions (77-WA/APC-1) (A) **My 101**
Improved LNG Semi Trailer Design (77-Pet-57) (A) **Ja 104**
Low NOx Combustion of Paraho Shale Oil in a 45-MW Utility Boiler (77-WA/Fu-1) (A) **My 92**
LNG is Safe (ES) **Mr 19**
New Gas Liquefaction Project (IF) **Ap 65**
Offshore Gas Liquefaction (IF) **F 63**
The Offshore LNG Facility—1977 Status Review (77-Pet-83) (A) **Ja 107**
Twenty-five Trillion Cu Ft of Natural Gas (ES) **F 26**

Natural Gas Compressors
Ten Years' Engineering Development in Gas Turbine Driven Natural Gas Compressor Stations (78-GT-74) (A) **Ji 96**

Natural Gas Liquids
Electronic Logging Tool (BTR) **Ap 61**

Natural Gas Pipelines
Economic Evaluation Technique of Selecting Turbines for Natural Gas Pipelines (78-GT-67) (A) **Ji 95**
The Internally Insulated Liquid Natural Gas Pipeline for Arctic Gas Recovery (77-WA/HT-17) (A) **Ap 103**
Natural Gas Pipeline Expanded (IF) **My 64**

Natural Gas Transmission
West Coast—Mid Continent Pipeline Project. (Engineering/Management Phases for Conversion of Natural Gas Transmission Systems to Crude Oil Transportation) (77-Pet-65) (A) **Ja 105**

Natural Resources
Peat for Power (BTR) **My 55**
Nau, J. M. Modeling and Analysis for Seismic Adequacy in Air Handling Unit Enclosures—The Effects of Structural Reinforcement (77-DET-136) (A) **F 127**

Naval Propulsion Gas Turbines
Future Prospects for Naval Propulsion Gas Turbines (78-GT-106) (A) **Ag 109**
Nayfeh, A. H. Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) (A) **Ja 113**
Nazimowitz, W. Evaluation of Two Industrial Boilers with Combustion Modifications for Reduced Pollutant Emissions (77-WA/APC-1) (A) **My 101**
Nazli, Z. Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) (A) **O 102**
Neal, B. G. *(author)* The Plastic Methods of Structural Analysis (CB) **Je 113**
Neale, K. W. Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) (A) **O 102**

Near-Field Disturbance
The Near-Field Disturbance Created by a Body in a Stratified Medium With a Free Surface (77-WA/APM-18) (A) **Ji 98**
Neely, H. H. Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) (A) **Mr 90**

Negative Production
Triple-Correlations Closure Models in an Asymmetric Heated Plane-Jet with Negative Production (78-HT-1) (A) **O 92**
Nelsen, R. R. Geothermal Drill Bit Improvement—Specific Application to the Geysers (77-Pet-67) (A) **Ja 105**
Nelle, D. E. Design Analysis of an Epicyclic Rotary Pump Mechanism (78-DET-46) (A) **D 92**
Nelson, A. C. An Optimization Strategy for Control of SO_x from Coal-Fired Power Plants (77-JPGC-Pwr-16) (A) **Mr 89**
Nelson, D. J. Rear Surface Noncontact Measurements of Laser Target Temperatures (78-HT-58) (A) **O 98**
Nelson, D. V. Development of Structural Design Criteria for Highly Irradiated Core Components (78-PVP-78) (A) **N 121**
Nelson, F. C. The Forced Vibration of a Three-Layer Damped Circular Ring (77-DET-154) (A) **F 129**
Nelson, L. A. Verification of High Reliability Condenser Design (77-JPGC-Pwr-14) (A) **Mr 89**
Nelson, R. G. A New Approach to the Design of Wet-Gas Pipelines (77-Pet-14) (A) **Ja 100**
Nelson, S. Simplex Solution of Magnel's Method of Prestressed Concrete Beam Design (77-DET-109) (A) **F 125**
Nelson, W. G. ECLSS Definition for a Low-Cost Space Construction Base (78-ENAs-15) (A) **N 112**
Nemat-Nasser, S. Geothermal Energy: Heat Extraction From Hot Dry Rock Masses (77-Pet-41) (A) **Ja 102**; On Harmonic Waves in Layered Composites (77-WA/APM-30) (A) **Ji 99**
Nenni, J. P. A Rotating Stall Control System for Turbojet Engines (78-GT-115) (A) **Ag 109**

Neurophysiology
Cybernetic Considerations in the Use of Myoelectric Activity for Prosthesis Control (77-WA/Bio-10) (A) **Ap 98**

Neutrinos Detector
Ocean as "Eye" on Cosmos (BTR) **Ji 48**

Neutron-Embrittled Reactor Vessel
A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) (A) **O 100**

Neutron Scattering Facility
National Small-Angle Neutron Scattering Facility (EN) **Ap 74**
Nevill, G. E., Jr. Improving Design Problem Representation (78-DET-73) (A) **D 95**

New Engineering Degree Program
Master's Degree Program to Cross Disciplinary Lines (EN) **Mr 66**

New Machines
Metalworking '78 (IF) **Mr 59**
Newmarch, J. E. Sealing Forces for Leak-Tight Operation of a Self-Energized Pressure Vessel Closure (78-PVP-16) (A) **O 103**
Newton, D. H. Startup and Initial Operating Experience of Braintree's 85-Megawatt Combined-Cycle Unit (77-JPGC-GT-1) (A) **Mr 92**
Nguyen-Duy, P. The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**
Ni, R.-H. A Rational Analysis of Periodic Flow Perturbation in Supersonic Two-Dimensional Cascade (78-GT-176) (A) **S 74**
Nickerson, J. H. D. Steam Generator Design Improvements for the CANDU Wolsung Nuclear Power Plant (78-NE-4) (A) **N 115**
Nicol, S. W. An Experimental Investigation of the Dynamic Behavior of a Roller Chain Drive (77-DET-168) (A) **F 130**
Nisbo, R. J. Power Plant Productivity Trends and Improvement Possibilities (77-JPGC-Pwr-11) (A) **Mr 89**
Nielsen, J. M. Analytical and Experimental Stress Analysis of a Cylinder-to-Cylinder Structure (77-PVP-11) (A) **Ja 108**
Nielsen, P. B. Design of a Combined Solar Collector/Absorber/Desorber for a Solid-Absorption Refrigerating System (78-HT-35) (A) **O 95**
Niemeyer, C. Experimental Investigation of Simulated Helicopter Fuel Cell Impact Phenomenon (78-DET-79) (A) **D 95**
Nisbett, E. G. Design, Manufacture and Safety Aspects of Forged Vessels for High-Pressure Services (78-PVP-72) (A) **N 120**; Factors Affecting The Notch

Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) (A) **O 98**

Nishikawa, N. An Analysis of Nonsimilar Boundary Layer Containing Liquid-Droplets Over a Heated Circular Cylinder (78-HT-20) (A) **O 94**

Nitrogen

Decay of the Argon Plasma Jet Surrounded by Ar, He, N_2 and H_2 Gases (78-HT-12) (A) **O 93**

Investigating Combustion Turbine Burner Performance with Coal Derived Liquids Having High Fuel Bound Nitrogen (78-GT-126) (A) **Ag 111**

Nitrogen Fixation Research (BTR) **N 62**

Nitrogen Arcs

Heat Transfer in the Anode Region of High Intensity Arcs (78-HT-9) (A) **O 93**

Nitrogen Oxide

Low NOx Combustion of Paraho Shale Oil in a 45-MW Utility Boiler (77-WA/Fu-1) (A) **My 92**

Measurement of Emissions Variability of a Large Turbofan Aero-Engine (78-GT-75) (A) **Ag 105**

Wide Range Operation of Advanced Low NO_x Aircraft Gas Turbine Combustors (78-GT-128) (A) **Ag 112**

Nitrogen Oxide Emissions

The Effects of Fuel Bound Nitrogen Concentration and Water Injection on NO_x Emissions from a 75-MW Gas Turbine (78-GT-89) (A) **Ag 107**

Nixon, D. R. Fast Flux Test Facility Pump-Thermal Analysis Verification (77-WA/NE-14) (A) **Je 102**

Niyogi, B. K. Simplified Seismic Analysis Method for Small Pipes (78-PVP-43) (A) **N 117**

Nobile, M. A. Beamlike Dynamic Vibration Absorbers (77-DET-176) (A) **F 131**

Noble, M. L. Gas Turbine Combustor Cooling by Augmented Backside Convection (78-GT-33) (A) **Ji 90**

Noise

Mechanically Induced Noise and Vibration in the Automotive Diesel Engine (77-DET-37) (A) **Ja 110**

Noise Radiated from Hydraulic Circuits (78-DE-23) (A) **O 92**

Noise and Society **Mr 71**

Transmission Errors and Noise of Spur Gears Having Uneven Tooth Profile Errors (77-DET-51) (A) **Ja 112**

Noise Control

ASME Members May Receive Noise/News **O 83**

Noise Generation

Predicting Acoustical Noise Generation in Complex Mechanical Systems (78-DET-60) (A) **D 93**

Noise Reduction

One-Stage and Two-Stage Vibration Isolators as Applied to High-Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) (A) **F 124**

Vibration and Noise Reduction of Beams and Plates by Use of Boundary Damping and Stiffness (77-DET-155) (A) **F 129**

Noise Spectra

Gear Noise Spectra—A Rational Explanation (77-DET-38) (A) **Ja 111**

Quiet Vent Valve Design and Airborne Noise Spectra (77-WA/Fcs-12) (A) **Ap 98**

Nonaxisymmetric Flow

Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**

Nonaxisymmetric Temperature Distribution

Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) (A) **O 101**

Noncircular Gears

Geometric Characteristics Design and Manufacturing of Noncircular Gears (77-DET-177) (A) **F 131**

Noncontact Measurements

Rear Surface Noncontact Measurements of Laser Target Temperatures (78-HT-58) (A) **O 98**

Nonflow Conditions

Influence of Static and Dynamics Asymmetric Loading Conditions on Silo Design (77-DET-145) (A) **F 128**

Nonhomogeneous Incompressible Fluid

Water Waves in a Nonhomogeneous Incompressible Fluid (77-WA/APM-27) (A) **Ji 99**

Nonisothermally Heated Horizontal Cylinder

The Longitudinal Water Boundary Layer Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**

Non-Linear Lateral Machanical Response

Non-Linear Lateral Mechanical Response of Pressurized Water Reactor Fuel Assemblies (77-WA/DE-18) (A) **Mr 95**

Nonlinear Analysis

Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) (A) **Ja 113**

Nonlinear Boundary Conditions

Forced Vibration of Continuous System with Nonlinear Boundary Conditions (77-DET-80) (A) **Ja 114**

Nonlinear Digital Simulation

Nonlinear Digital Simulation and Minimum Fuel Control of a Jet Type Gas Turbine Power Generating Unit (78-GT-43) (A) **Ji 92**

Nonlinear Distribution

A High-Order Theory of Plate Deformation—Part 1: Homogeneous Plates (77-WA/APM-23) (A) **Ji 98**

Nonlinear Problems

A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) (A) **Ja 111**

Nonlinear Programming

Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) (A) **Je 106**

Nonlinear Response

On the Nonlinear Response of a Relief Valve (77-DET-81) (A) **F 122**

Nonlinear Restraints

Consideration of Local Piping Stiffness in Dynamic Analysis by Piping Systems with Nonlinear Restraints (78-PVP-109) (A) **N 125**

Nonlinear Structural Dynamics

Modal Superposition Method for Computationally Economical Nonlinear Structural Analysis (78-PVP-70) (A) **N 120**

Nonlinear System

Analytical Experimental Correlation of a Nonlinear System Subjected to a Dynamic Load (78-PVP-37) (A) **O 105**

Nonlinear Thermal Processes

Microcomputer Implementation of Direct Digital Control Algorithms for Thermal Process Control Applications (77-WA/Aut-3) (A) **Je 102**

Nonlinear Torsional Mechanical System

Optimization of a Nonlinear Torsional Mechanical System (77-DET-107) (A) **F 125**

Nonlinear Transient Analysis

Nonlinear Transient and Spectrum Response Seismic Analysis of a Reactor Coolant Pump (78-PVP-36) (A) **O 105**

Nonlinear Vibration Neutralizer

Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-85) (A) **F 123**

Nonlinear Wave Solutions

Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) (A) **O 96**

Nonluminous Gases

Radiative Heat Transmission from Nonluminous Gases. Computational Study of the Emissivities of Carbon Dioxide (78-HT-16) (A) **O 94**

Nonproportional Paths

Cyclic Plasticity for Non-proportional Paths: Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) (A) **Je 110**

Nonseries Airfoil Design Technology

Application of Nonseries Airfoil Design Technology to Highly Loaded Turbine Exit Guide Vanes (78-GT-108) (A) **Ag 109**

Nonsimilar Boundary Layer

An Analysis of Nonsimilar Boundary Layer Containing Liquid-Droplets Over a Heated Circular Cylinder (78-HT-20) (A) **O 94**

Nonsymmetric Convective Heat Transfer

Thermal Response of Slabs Subjected to Nonsymmetric Convective Heat Transfer (78-DE-8) (A) **S 72**

Nonuniform Axial Loads

Buckling of Cylindrical Shells Subjected to Nonuniform Axial Loads (77-WA/APM-12) (A) **Ji 97**

Nonuniform Inlet Flow

Experimental Study of an Axial Compressor Rotor Transfer Function with Nonuniform Inlet Flow (78-GT-69) (A) **Ji 96**

Nonuniform Rotating Disturbances

Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) (A) **Ag 115**

Norman, N. E. Economic Factors in Mechanical Raise Boring (77-PET-29) (A) **Ja 101**

Norris, D. M., Jr. A Plastic-Strain, Mean-Stress Criterion for Ductile Facture (78-Mat-13) (A) **O 100**

Notch Toughness

Radiation Effects in Boiling Water Reactor Pressure Vessel Steels (78-Mat-11) (A) **O 99**

Notch Toughness Steel

Factors Affecting The Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) (A) **O 98**

Noyes, R. *(editor)* Coal Resources, Characteristics and Ownership in the U.S. (CB) **O 108**; Cogeneration of Steam and Electric Power (CB) **D 97**

Notched Gears

The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) (A) **Ja 112**

Nozaki, N. Development of Sumitomo High Toughness Process (SHT) for Arctic Grade Line Pipes (77-Pet-61) (A) **Ja 104**; Study on the Resistivity of Various Types of Steels Against Propagating Shear Fracture by Modified West Jefferson Type Burst Test (78-PVP-71) (A) **N 120**

Nozzle Corners

A Procedure for Estimating the Stress Intensity Factor of a Flattened Surface Crack at a Nozzle Corner (78-PVP-95) (A) **N 123**

Nozzle Cracks

Safety Evaluation of Reactor Vessel Nozzle Cracks (78-PVP-90) (A) **N 122**

Nozzle Discharge Coefficients

Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) (A) **Ap 100**

Nozzles

Dynamic Analysis of a Pressurized Water Reactor Coolant System Subjected to Postulated Loss-of-Coolant Accident Transient Loads (77-WA/DE-23) (A) **Mr 96**

Effect of Scaling on Switching Time of Bistable Amplifiers (77-WA/Fcs-5) (A) ***Ap 97**

Embedded Elliptical Crack at a Corner (78-PVP-5) (A) **O 102**

Erosion and Its Effect on a Water-Cooled Turbine (78-GT-123) (A) **Ag 111**

A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) (A) **Ap 94**

Measurement of Heat-Transfer Rate to a Gas Turbine Stator (78-GT-119) (A) **Ag 110**

Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) (A) **O 102**

Nuclear Arsenals

Little Boy and Fat Man (BTR) **Je 56**

Nuclear Energy

Breeder Reactor Held Vital (ES) **My 20**

The Impact of the Presidency on Technology: The Case of Nuclear Energy **Je 20**

Power Shortages Ahead (ES) **Ap 21**

Nuclear Engineering

Acid Digestion and Pressurization Control in Combustible Radwaste Treatment (78-NE-17) (A) **N 115**

Alternate Fuel Cycles in HTGR's (77-JPGC-NE-26) (A) **Mr 92**

Analysis of Closely Spaced Double Tubesheets Under Mechanical and Thermal Loadings (77-JPGC-NE-21) (A) **Mr 92**

Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) (A) **Mr 91**

Application of European Radwaste Technology in North America (78-NE-16) (A) **N 115**

Availability Limiting Factor Identification in Nuclear Power-Plants (78-JPGC-NE-12) (A) **D 85**

The Canadian Development Program for Conditioning CANDU Reactor Wastes for Disposal (78-NE-18) (A) **N 115**

Control of Nuclear Fuel Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**

Core Auxiliary Heat Exchanger Design for HTGR (78-NE-9) (A) **N 114**

Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**

Crossflow-Induced Vibration of a Row of Circular Cylinders in Water (77-JPGC-NE-4) (A) **Mr 90**

A Demonstration of Refueling Outage Improvements (78-JPGC-NE-11) (A) **D 85**

Design of Sodium-Cooled Reactor Systems and Components for Maintainability (78-JPGC-NE-3) (A) **D 84**

Development of LMFBR Steam Generator Leak Protection Systems (77-WA/NE-12) (A) **Je 102**

Development of Small Sodium Valves for the Fast Flux Test Facility (77-WA/NE-13) (A) **Je 102**

Development Testing of Leak Injection Devices for Use in

Testing Sodium-Water Leak Detection Modules (77-JPGC-NE-7) (A) **Mr 90**
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) (A) **Je 101**
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) (A) **Mr 92**
An Evaluation of Liquid Radioactive Waste Treatment Systems for CANDU-PHW (78-JPGC-NE-17) (A) **D 86**
An Evaluation of New Filter/Demineralizer Precoat Materials (78-JPGC-NE-16) (A) **D 86**
Evolution of Radwaste Evaporators in West Germany (77-JPGC-NE-13) (A) **Mr 91**
Experience with Cement Usage as the Binding Agent for Radwaste (78-NE-15) (A) **N 115**
Experimental Evaluation of Duplex Tube Heat Transfer Characteristics Stimulating Steam Generator External Heating (77-JPGC-NE-9) (A) **Mr 90**
An Experimental Evaluation of the Flow Distribution in the CRBRP Modular Steam Generator (77-JPGC-NE-12) (A) **Mr 91**
Fast Flux Test Facility Pump-Thermal Analysis Verification (77-WA/NE-14) (A) **Je 102**
Feasibility of Local Stress Relieving Close to Main Shell of a Large Vessel (78-NE-2) (A) **N 114**
Flow Model Test Development of CRBRP Intermediate Heat Exchanger (77-JPGC-NE-10) (A) **Mr 90**
The Fort St. Vrain Steam Generators (78-NE-4) (A) **N 115**
Fretting Wear of Heat Exchanger Tubes Part I: Experiments (78-JPGC-NE-8) (A) **D 84**; Part II: Models (78-JPGC-NE-9) (A) **D 84**
Fusion Energy (77-WA/NE-1) (A) **Je 100**
Inelastic Stress Distribution in Tubesheet Ligaments Under Thermal and Mechanical Loading (77-JPGC-NE-22) (A) **Mr 91**
Intermediate Heat Exchanger Development for the Clinch River Breeder Reactor Plant (77-WA/NE-10) (A) **Je 101**
Investigations into the Sodium-Steam Surface Interaction on a Stagnant Pool (77-JPGC-NE-11) (A) **Mr 91**
ISI Management and the Role of the Third Party Consultant (78-NE-14) (A) **N 115**
Maintenance of Clinch River Breeder Reactor Nuclear Island Systems (78-JPGC-NE-4) (A) **D 84**
Maintenance Experience with Sodium Systems at Experimental Breeder Reactor II (EBR-II) (78-JPGC-NE-5) (A) **D 84**
Maintenance and Requalification of a Large LMFBR Component (78-JPGC-NE-1) (A) **D 84**
Mechanical Analysis of Steam Generator Tube Denting (78-NE-5) (A) **N 115**
The Nuclear Equipment Arrangement of Darlington Generating Station (78-NE-11) (A) **N 115**
Occupational Exposure Measurement Program at Millstone-2 (77-JPGC-NR-16) (A) **Mr 91**
Operating Experience and Advanced Technique in Liquid Radwaste Processing (77-JPGC-NE-17) (A) **Mr 91**
Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) (A) **Mr 90**
Performance of the Fort St. Vrain Steam Generators up to 70 Percent Reactor Power During the Start-Up Test Program (78-NE-8) (A) **N 114**
Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**
Phenix Plant Operation and Maintenance Experience (78-JPGC-NE-2) (A) **D 84**
Program to Establish LMFBR Commercialization (77-JPGC-NE-23) (A) **Mr 92**
Recent Advances in Evaluating Critical Heat Flux Conditions in LMFBR Steam Generators (77-WA/NE-11) (A) **Je 101**
Recent Experience in Inservice Examinations (78-NE-13) (A) **N 116**
Remotely Operated Ultrasonic Testing System (78-NE-3) (A) **N 114**
The Service Robot: Myths, Benefits, and Needs (78-JPGC-NE-10) (A) **D 85**
Special Engineering Problems of TFTR (77-WA/NE-4) (A) **Je 100**
Steam Generator Design Improvements for the CANDU Wolsung Nuclear Power Plant (78-NE-4) (A) **N 115**
Structural Design Optimization of Once-Through Type Heat Exchangers (77-JPGC-NE-3) (A) **Mr 89**
Structural Design of Piping for CANDU Nuclear Stations (78-NE-1) (A) **N 114**
Structural and Mechanical Design of Tokamaks (77-WA/NE-2) (A) **Je 100**
Study of Bolted Joint Integrity and Inter-Tube-Pass Leakage in U-Tube Heat Exchangers—Part I: Analysis (77-WA/NE-6) (A) **Je 101**; Part II: Applications (77-WA/NE-7) (A) **Je 100**
Summary of the ORNL-Sponsored Reactor Radwaste Management Workshop (77-JPGC-NE-14) (A) **Mr 91**
Testing of FFTF Fuel Handling Equipment (77-WA/NE-9) (A) **Je 101**
On Thermal Expansion Induced Stresses in U-Bends of Shell- and Tube-Heat Exchangers (78-JPGC-NE-14) (A) **D 86**
Thermal/Hydraulic Design of Dry-Saturated Steam Evaporators for a Large Fast Breeder Reactor Plant (78-JPGC-NE-7) (A) **D 85**
Thermal-Hydraulic Performance of a Consolidated Nuclear Steam Generator (CNSG) Module (77-JPGC-NE-2) (A) **Mr 89**
Tokamak Reactors (77-WA/NE-3) (A) **Je 100**
Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) (A) **Mr 91**
Ultrasonic Monitoring of Growth of Part-Through Thickness Defects at 290°C (78-NE-12) (A) **N 116**
United States Uranium Position (77-JPGC-NE-25) (A) **Mr 92**
Use of Thorium in Power Reactors (77-JPGC-NE-24) (A) **Mr 92**
Velocity Distributions and Turbulence Intensities at Tubesheets in a Two-Pass Condenser Model (78-JPGC-NE-6) (A) **D 85**
Vibration of a Heat Exchanger Tube/Support Impact (77-JPGC-NE-5) (A) **Mr 90**
Waste Tritium Cleanup for the Tokamak Fusion Test Reactor (TFTR) (78-JPGC-NE-15) (A) **D 86**

Nuclear Explosions
Monitoring Underground Nuclear Explosions (CB) **Jl 100**

Nuclear Fuel Assembly
Forced Vibration Testing of a Nuclear Fuel Assembly (77-DET-141) (A) **F 128**

Nuclear Fuels
Alternate Fuel Cycles in HTGR's (77-JPGC-NE-26) (A) **Mr 92**
Control of Nuclear Fuel Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**
Use of Thorium in Power Reactors (77-JPGC-NE-24) (A) **Mr 92**

Nuclear Fusion
Magnet Coils for Nuclear Fusion (IB) **D 49**
Tokamak Reactors (77-WA/NE-3) (A) **Je 100**

Nuclear Future
Welcoming the Nuclear Future (C) **N 57**

Nuclear Gas Turbines
Nuclear Gas Turbine Power Plant Activities in the United States (77-JPGC-GT-5) (A) **Mr 93**

Nuclear Generating Stations
Seismic Analysis of the Main Steam System for 600-MWe CANDU Stations (78-PVP-87) (A) **N 121**

Nuclear Heat Sources
The Closed-Cycle Turbine—Present and Future Prospectives for Fossil and Nuclear Heat Sources (78-GT-102) (A) **Ag 108**

Nuclear Island Systems
Maintenance of Clinch River Breeder Reactor Nuclear Island Systems (78-JPGC-NE-4) (A) **D 84**

Nuclear Performance
The Bottom Line on Nuclear Performance (ES) **S 20**

Nuclear Piping
Design and Analysis of a Compact Array of (Class 1) Nuclear Piping for Large Anchor Movements and Seismic Supports (78-PVP-29) (A) **O 104**
Optimum Design for Class 1 Nuclear Piping (78-PVP-81) (A) **N 121**

Nuclear Plants
The Breeder—Now or Never (NR) **Je 66**
Nuclear Licensing Delays (ES) **My 21**

Nuclear Power
The Menace of Atomic Energy (CB) **My 105**
A 400-MW Modular Reactor (ES) **My 20**
New Vistas in Bioengineering (C) **O 45**
Nuclear Nonproliferation is Topic of Symposium **Jl 77**
Nuclear Power Comes Through! (ES) **S 21**
Nuclear Power as a Deterrent to War (NR) **Mr 64**
Nuclear Proliferation and Nuclear Power (77-WA/TS-1) (A) **My 98**
Other Looks at "Energy Realities" (C) **Jl 44, 45**
Socio-Technical Concerns (C) **D 36**
Two Bills in Trouble (NB) **N 79**
Unplugging the Regulatory Bottleneck (ES) **S 20**
The Uranium Enrichment Business (ES) **My 20**

Nuclear Power Plants
Atomic Issues (C) **Jl 42-44**
Compact Metallic and Ceramic Recuperators for Gas Turbines (78-GT-62) (A) **Jl 95**
Decoupling Criteria for Seismic Analysis of Nuclear Power Plant Systems (78-PVP-27) (A) **O 104**
An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Jl 94**
Mass Coupling Effects in the Dynamic Analysis of Nuclear Power Plant Systems (78-PVP-28) (A) **O 104**
Modal Summing Rules for Seismic Qualification (78-PVP-32) (A) **O 105**
More on Price-Anderson (C) **S 46**
Nuclear Power Plant Quality Assurance—Palliative or Panacea? **Jl 30**
OBE Design Effects on Nuclear Power Plant Pressure Vessel (78-PVP-14) (A) **O 103**
Optimization Analysis of a CCGT Nuclear Power Plant with Application to the HHT 3000 MWth Commercial Plant (HHT-Project) (78-GT-16) (A) **Jl 88**
Power Generation Research (IF) **N 72**
Pushing Ahead on Nuclear Safety (ES) **Jl 23**
Response Spectrum Method with Residual Terms (78-PVP-79) (A) **N 121**
Seismic Design Margins for CANDU-PHW Nuclear Power Plants (78-PVP-38) (A) **N 116**

Nuclear Power Program
Pre-service and In-service Inspection-Research and Development in Support of the Canadian Nuclear Power Program (78-PVP-23) (A) **O 104**

Nuclear Power Stations
Victim of Bureaucratic Inertia (ES) **O 46**

Nuclear Pressure Vessels
High Pressure, Quick Acting Closure for Large Diameter, Full Opening, Nuclear and Petro-Chem Pressure Vessels (78-PVP-74) (A) **N 120**
The Rule of Codes, Standards and Regulations in Nuclear Pressure Vessel Surveillance Programs (78-Mat-24) (A) **O 101**

Nuclear Proponent
The Debate: A Nuclear Proponent Speaks His Mind (BTR) **Ag 54**

Nuclear Reactor Core
Seismic Response of a Block Type Nuclear Reactor Core (77-DET-138) (A) **F 128**

Nuclear Reactor Plants
Super Crane (BTR) **O 57**

Nuclear Reactor Systems
Seismic Qualification Testing for Shutoff Mechanism for CANDU Reactor (78-PVP-41) (A) **N 117**

Nuclear Reactors
ASME/CSME and Metal Properties Council Cosponsor PVP Conference (NR) **My 69**
Canada Hosts International Heat Transfer Conference (NR) **My 69**
High-Level Radwaste Patent Issued (BTR) **D 38**
Intermediate-Size Nuclear Reactors (ES) **Je 18**
A Look at Reactor Cooling Water (ES) **Ja 19**

Nuclear Retrofit
Transportable Lathe Speeds Nuclear Retrofit (BTR) **O 55**

Nuclear Safeguards Program
Physical vs. Psychological Stress: Different Heart Rhythm (BTR) **N 64**

Nuclear Safeguards System
Laser Guns "Fired" in Anti-Terrorist Exercises (BTR) **N 59**

Nuclear Steam Generator
Thermal-Hydraulic Performance of a Consolidated Nuclear Steam Generator (CNSG) Module (77-JPGC-NE-2) (A) **Mr 89**

Nuclear Steam Supply
Introducing the GAISSAR Design (ES) **D 14**

Nuclear Steam Supply System
Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**

Nuclear Systems
Standardized Nuclear Systems (ES) **N 20**

Nuclear Technology
Proliferation-Resistant Nuclear Technology (NB) **O 68**

Nuclear Transport Accident Study
Nuclear Transport Accident Risk Slight, Study Says

(BTR) **N 69**
Nuclear Waste
"Waste" Not (C) **My 53**
What to do with Nuclear Waste (ES) **Jl 23**
Whither Nuclear Waste? (NB) **Ag 74**
Nuclear Waste Disposal
NSPE Urges Action on Nuclear Waste Disposal (NB) **N 79**
Progress in Nuclear Waste Disposal (ES) **Je 18**
White House Study Glum on Nuclear Waste Disposal (NB) **N 79**
Nuclear Waste Management
Garbage and Government (WW) **O 74**
Nuclear Waste Storage
Studying Nuclear Waste Storage (EN) **O 69**
Nuclear Weapons
"Triumph of Craziness" (BTR) **S 48**
Nucleate Boiling Conditions
Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**
Nulsmer, R. J. On the Changing Order of Singularity at a Crack Tip (77-WA/APM-15) (A) **Jl 98**
Numerical Algorithms
A Closed-Form Numerical Algorithm for the Periodic Response of High-Speed Elastic Linkages (78-DET-15) (A) **D 89**
A Computationally Efficient Numerical Algorithm for the Transient Response of High-Speed Elastic Linkages (78-DET-54) (A) **D 93**
Numerical Calculations
The Elastic Field Outside an Ellipsoidal Inclusion (77-WA/APM-29) (A) **Jl 99**
Flow in an Annular Axial-Radial Diffuser (78-GT-133) (A) **Ag 112**
Numerical Evaluation
Stabilizing and Destabilizing Effects of Coriolis Force on Two-Dimensional Laminar and Turbulent Boundary Layers (78-GT-1) (A) **Jl 87**
Numerical Integration
Asymmetric Branching of Cracks (77-WA/APM-16) (A) **Jl 98**
Numerical Investigation
A Numerical Investigation of Three-Dimensional Flows in a Rotating Duct by a Partially-Parabolic Procedure (77-WA/FE-7) (A) **Ap 94**
Numerical Methods
A New Approximate Approach for Elastic Body Contact in Roller Bearings (78-DE-18) (A) **S 74**
A Numerical Method Based on the Method of Characteristics for Two-Dimensional Fluid Transients (78-PVP-57) (A) **N 118**
A Numerical Method for Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) (A) **Je 107**
Numerical Results
Three-Dimensional Natural Convection in a Confined Porous Medium Heated from Below (78-HT-56) (A) **O 98**
Numerical Solutions
Heat Transfer in the Anode Region of High Intensity Arcs (78-HT-9) (A) **O 93**
Numerical Solutions for Laminar Orifice Flow (77-WA/FE-13) (A) **Ap 95**
Transient Heat and Mass Transfer in Soils (78-HT-31) (A) **O 95**
Nunneley, S. A. Physiological Requirements for Design of Environmental Control Systems: Control of Heat Stress in High-Performance Aircraft (78-ENAs-22) (A) **N 113**

O

Oates, G. C. Analysis of Flows within Particle Separators (77-WA/FE-21) (A) **Ap 96**
Obara, Y. Finite Element Analysis of a Large Ridge Inert Atmosphere Creep Test Specimen (78-PVP-7) (A) **O 102**
Obata, F. Difference Between Rolling Fatigue Behaviors of Surface Hardened and of Soft Steel Rollers (77-DET-57) (A) **Ja 112**
Oberjohn, W. J. Thermal-Hydraulic Performance of a Consolidated Nuclear Steam Generator (CNSG) Module (77-JPGC-NE-2) (A) **Mr 89**; Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**
Oblique Cutting
On a New Model of Oblique Cutting (77-WA/Prod-6) (A) **Je 104**
Observation Submarine
Two-Man Submarine (BTR) **O 55**
Occupation of Space
The Permanent Occupation of Space (NR) **Ja 70**
Occupational Exposure Data
Occupational Exposure Measurement Program at Millstone-2 (77-JPGC-NE-16) (A) **Mr 91**
Occupational Safety & Health Administration
The Agency You Love to Hate (C) **F 52**
Panel Urges More Accident Probes by OSHA (NR) **N 77**
Ocean Energy
In South Pacific Waters (ES) **Mr 18**
Ocean Engineering
Decometer: A Microprocessor-Based Decompression Computer for Divers (77-WA/Oce-8) (A) **Ap 93**
Effect of Weathering and Submersion in Seawater on the Mechanical Properties of Acrylic Plastic (77-WA/Oce-5) (A) **Ap 92**
Effects of Variation in Velocity Profiles on a Simulated Submarine Pipeline (77-WA/Oce-4) (A) **Ap 92**
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) (A) **Ap 92**
Hyperbaric Breathing Simulators for Use in the Evaluation of Underwater and Hyperbaric Breathing Apparatus (77-WA/Oce-6) (A) **Ap 93**
A Specialized Microprocessor System for Decompression Management of Deep Diving (77-WA/Oce-7) (A) **Ap 93**
Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) (A) **Ap 92**
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) (A) **Ap 92**
Ocean Thermal Energy
Moving Ahead on Ocean Thermal Energy (ES) **Je 19**
Ocean Thermal Energy Conversion
Ocean Power—A Growing Reality (ES) **N 20**
Ocean Wave Energy
Will Japan be First with Solar Wave Power? (BTR) **Ja 53**
Oceanic Thermal Gradients
Low-Grade Thermal Energy-Conversion Joule Effect Heat Engines (78-ENAs-7) (A) **N 110**
Oceanographic Platform
Dynamics of a Neutrally Buoyant Inflatable Oceanographic Platform (77-DET-139) (A) **F 128**
O'Connor, E. W. Shuttle Orbiter Water Spray Boiler (78-ENAs-17) (A) **N 112**
Odgers, J. A Simple Method for the Prediction of Wall Temperatures in Gas Turbines (78-GT-90) (A) **Ag 90**
Odi-Owei, S. Traction Behavior in Sliding ehl Contacts (77-Lub-5) (A) **F 132**
O'Donnel, W. J. Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) (A) **Mr 92**; Theory of Free Coiled Pressure Vessels (78-PVP-73) (A) **N 120**
Oegerli, R. Gas Turbine Commissioning Procedure (78-GT-54) (A) **Jl 94**
Oehlbeck, D. L. Heat Transfer From Axisymmetric Sources at the Surface of a Rotating Disk (78-GT-141) (A) **Ag 114**
Office of Business Assistance
Conservation: Cooperation vs. Coercion (WW) **F 71**
Office of Immigration and Naturalization
The Frustrating Plight of Foreign Students (NB) **Ja 77**
Office of Science & Technology Policy
The Future of Science and Technology Policymaking (NR) **Ja 75**
Offner, D. H. A Case Study for Bionics: The Space Toggle (78-DET-47) (A) **D 92**; Determining the Coefficient of Friction for Rolling Disks (77-Lub-11) (A) **Mr 85**
Offset Circular Whirl Orbits
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) (A) **Ja 109**
Offshore Developments
World Offshore Developments (IF) **S 57**
Offshore Environment
Offshore Environmental Study (BTR) **Ag 61**
Offshore Handling Systems
Mechanical Systems for Handling Drill Pipe, Riser, and Casing (77-Pet-77) (A) **Ja 106**
Offshore LNG Facility
The Offshore LNG Facility—1977 Status Review (77-Pet-83) (A) **Ja 107**
Offshore Oil Production
LPS Manifold Center (IF) **S 56**
Offshore Oilfield Operations
Optimum Development of Offshore Oilfield Operations (77-Pet-50) (A) **Ja 103**
Offshore Pipelines
Better Pipelines Needed Offshore (ES) **Mr 18**
Offshore Storage Plants
Offshore Gas Liquefaction (IF) **F 63**
Offshore Technology
Houston Welcomes Offshore Technology Conference (NR) **Ap 69**
Ogg, J. Critical Speeds and Response of a Large Vertical Pump (78-PVP-34) (A) **O 105**
Ohaneih, D. C. Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-68) (A) **Ja 105**
Ohashi, S. Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) (A) **F 131**
Ohmiya, M. Effects of Joule Heating on Plasma Heat Transfer (78-HT-11) (A) **O 93**
Ohtsuka, N. Acoustic Emission Monitoring During Rupture Test of Pressure Vessel and Laboratory Fracture Test (78-PVP-18) (A) **O 104**
Oil
Atomization of Crude and Residual Fuel Oils (78-GT-83) (A) **Ag 106**
Can Coal-Oil Mixtures Make It as Industrial Fuels? **Mr 24**
Operating Experience on Residual Fuel Oil with a W251 Combustion Turbine (78-GT-104) (A) **Ag 108**
Problems and Operating Experiences with Gas Turbines Burning Residual and Crude Oils (78-GT-103) (A) **Ag 108**
Steam Flooding (BTR) **Ag 57**
West Coast—Mid Continent Pipeline Project. (Engineering/Management Phases for Conversion of Natural Gas Transmission Systems to Crude Oil Transportation) (77-Pet-65) (A) **Ja 105**
Oil Contamination
Contamination in Lubrication Systems (77-WA/Lub-1) (A) **Jl 96**
Oil-Drilling Platforms
Challenges of Deep-Water Drilling (BTR) **S 49**
Oil Exploration
Deep-Water Oil (BTR) **O 50**
Oil Extraction
In Situ Extraction of Oil from Shale (BTR) **D 40**
Oil Fields
Optimum Development of Offshore Oilfield Operations (77-Pet-50) (A) **Ja 103**
Undersea Work System (BTR) **N 62**
Oil Film Bearings
The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) (A) **Ja 111**
Oil Film Dampers
An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) (A) **Ja 110**
Oil Flow
Using Steam to Increase Oil Flow (BTR) **N 63**
Oil Industry
The Centaur Engine: Operational Progress Report (78-GT-159) (A) **Ag 116**
Oil Jet
Study of Lubrication Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) (A) **F 124**
Oil Lubricated Involute Gearing
The Practical Significance of Designing to Gear Pitting Fatigue Life Criteria (77-DET-122) (A) **F 126**
Oil Project
Lube Oil Project (IF) **O 60**
Oil Recovery
An Automatic Blending and Injection System for Tertiary Oil Recovery by Chemical Flooding (77-Pet-44) (A) **Ja 103**
Oil Shale
Underground Combustion: Shale to Liquid Oil (BTR) **Ap 58**
Oil Spills
Oil Spill Control and Cleanup (ND) **D 58**
Oil Storage
Salt Cavern Crude Oil Storage Program (BTR) **N 64**
Oil Wells
Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) (A) **Ja 101**
Okamoto, H. Remotely Operated Ultrasonic Testing Sys-

tem (78-NE-3) (A) **N 114**

Okiishi, T. H. Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **JI 87**

Okubo, S. A Model for Axial Splitting Under Uniaxial Compression (77-Pet-73) (A) **Je 106**

Olander, D. R. Overview of Fuel Element Design (78-PVP-50) (A) **N 118**

Oldenkamp, R. D. The Atomics International Open Loop and Closed Loop Aqueous Carbonate Processes—A Current Assessment (78-JPGC-Pwr-15) (A) **D 83**

Oldfield, W. Reference Fracture Toughness Curves for Irradiated Pressure Vessel Steels (78-Mat-20) (A) **O 101**

Oliker, I. Cogeneration Power Plants Serve District Heating Systems **JI 24**; Steam Turbines for Co-generation Power Plants (78-JPGC-Pwr-16) (A) **D 83**

Oliva, H. M. An Experimental Evaluation of the Flow Distribution in the CRBRP Modular Steam Generator (77-JPGC-NE-12) (A) **Mr 91**

Olson, B. J. Energy and American Goals (C) **S 46**

O'Neill, M. W. Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) (A) **Ja 106**

On-Site Flame Hardening
Feasibility Study of On-Site Flame Hardening of Rail (78-RT-8) (A) **O 91**

On-Site Generation
On-Site Generation of Hydrogen for Generator Cooling (78-GT-196) (A) **S 76**

On-Site Performance Measurements
An Analysis Procedure for the Validation of On-Site Performance Measurements of Gas Turbines (78-GT-152) (A) **Ag 115**

One-Stage Vibration Isolators
One-Stage and Two-Stage Vibration Isolators as Applied to High-Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) (A) **F 124**

Oosthuizen, P. H. Experimental Study of Buoyant Wakes in Horizontal Flows (77-WA/HT-31) (A) **Ap 104**; A Numerical Study of the Surface Thawing of Coal Cars (77-WA/HT-33) (A) **Ap 105**

Open-Cycle Gas Turbine
Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal (77-WA/Ener-9) (A) **My 94**

Open-End Spinning
The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) (A) **F 132**

Opening Room Blends
Combing of Opening Room Blends of Cotton and Polyester (77-Tex-5) (A) **F 132**

Operational Experience
USS Oliver Hazard Perry (FFG-7) Guided Missile Frigate Propulsion System Land Based Test Site Operational Experience (78-GT-150) (A) **Ag 115**

Operational Planning
Btu Accounting (ES) **Ap 20**

Operational Progress Report
The Centaur Engine: Operational Progress Report (78-GT-159) (A) **Ag 116**

Optic Illumination
Instrument Design for Vitreous Surgery Via the Pars Plana (77-WA/Bio-1) (A) **Mr 97**

Optical Design
Optical Design and Performance of an Inverted, Segmented Mirror Solar Concentrator (78-HT-32) (A) **O 96**

Optical Detector
Optical Traffic-Sensing (BTR) **O 52**

Optical Property Measurements
Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/Sol-1) (A) **My 97**
Optical Property Measurements for Suspensions of Unicellular Algae (78-HT-14) (A) **O 93**

Optical Scanning System
An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) (A) **F 131**

Optical Sensors
Laser Precision in Turbine Construction (IF) **JI 54**

Optimal Control
Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) (A) **Ja 111**; Design of Mechanical Components Using Optimal Control (77-DET-46) (A) **Ja 111**
Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) (A) **Je 102**

Optimal Design
An Experimental Strategy for Designing Tool Life Experiments (77-WA/Prod-24) (A) **Je 106**
A Proposed Scheme for Computer Aided Design and Manufacture of Radial Turbine Rotors (78-GT-156) (A) **Ag 115**
Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) (A) **Ja 108**

Optimal Edge Geometry
Optimal Edge Geometry for Maximum Tool Life (77-WA/Prod-43) (A) **Je 108**

Optimal Machining Speeds
Machine Loading and Product-Mix Analysis for Group Technology (77-WA/Prod-19) (A) **Je 105**

Optimal Parameters
Correction of Optimal Parameters in Systems with Small Delays (77-WA/Aut-7) (A) **Je 103**

Optimal Reactor Configurations
Limitations on Water Production in the Iron-Catalyzed Bosch Process (78-ENAs-4) (A) **N 110**

Optimal Seismic Design
Optimal Seismic Design of Plane Frames (77-DET-137) (A) **F 128**

Optimal Strategy
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) (A) **Je 107**

Optimality Criteria
Mechanism Optimization Via Optimality Criterion Techniques (78-DET-53) (A) **D 91**
Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) (A) **Ja 111**

Optimization
Application of Goal Programming to Machinability Data Optimization (77-DET-19) (A) **Ja 108**
On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/Prod-14) (A) **Je 104**
Compressed Air Energy Storage Turbomachinery (78-GT-97) (A) **Ag 108**
Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) (A) **F 131**
Determining Muscle Forces in the Leg During Normal Human Gait—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) (A) **Ap 98**
Grid Selection and Refinement Procedures in Finite Element Analysis (78-DE-21) (A) **O 92**
Influence of Geometric Effects on the Aspect Ratio Optimization of Axial Turbine Bladings (78-GT-173) (A) **S 74**
Numerical Linearization of Themistor Bridge Circuits for In Vivo Medical Research (77-WA/Bio-14) (A) **Ap 99**
Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) (A) **Je 106**
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) (A) **Ja 108**
Performance Optimization of Existing Gas Pipeline Systems (77-Pet-85) (A) **Ja 107**
Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) (A) **Ja 111**
Study of Bolted Joint Integrity and Inter-Tube Pass Leakage in U-Tube Heat Exchangers—Part I: Analysis (77-WA/NE-6) (A) **Je 101**

Optimization Algorithm
A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) (A) **Ja 111**

Optimization Analysis
Optimization Analysis of a CCGT Nuclear Power Plant with Application to the HHT 3000 MWth Commercial Plant (HHT-Project) (78-GT-16) (A) **JI 88**

Optimization Codes
Validity of Colville's Time Standardization for Comparing Optimization Codes (77-DET-116) (A) **F 126**

Optimization Computer Program
Cost-Effectiveness Study of Heat Pipe Heat Exchangers (77-WA/HT-5) (A) **Ap 101**

Optimization Problem
On the Kinematic and Dynamic Synthesis of a Variable-Speed Drive (77-DET-124) (A) **F 126**

Optimization Techniques
Computer Simulation of Fluid Control Circuits (77-WA/Fics-6) (A) **Ap 97**
New Optimization Techniques (77-DET-169) (A) **F 130**

Optimum Control Logic
Development of Gas Turbine Performance Seeking Logic (78-GT-13) (A) **JI 88**

Optimum Design
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) (A) **Je 105**
Design Considerations for Future Heat Recovery Boilers Aboard Naval Vessels (78-GT-162) (A) **Ag 105**
Optimum Design of Fillets in Flat and Round Tension Bars (77-DET-45) (A) **Ja 112**
A Strategy for the Optimum Design of Acoustic Space (77-DET-44) (A) **Ja 111**

Optimum Development
Optimum Development of Offshore Oilfield Operations (77-Pet-50) (A) **Ja 103**

Optimum Humidity
The Dependence of the CO_2 Removal Efficiency of LiOH on Humidity and Mesh Size (78-ENAs-5) (A) **N 110**

Optimum Parameter
Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) (A) **Je 108**

Optimum Performance
Pallet Loader Boosts Productivity (BTR) **Ag 58**

Optimum Synthesis
Optimum Synthesis of Mechanisms Using Heuristics for Decomposition and Search (78-DET-5) (A) **D 88**

Orbital Flight Test
Power Production in Space (BTR) **N 65**

Orbital Mechanics
Moon Skirting Cosmic "Fence" (BTR) **My 59**

Orbital Servicing System
Robot Mechanic for Spacecraft (BTR) **Ag 55**

Orbiter Mission Duration
Extended Duration Orbiter Life Support System Options (78-ENAs-31) (A) **N 113**

Orbiters
Extended Duration Orbiter Life Support Definition (78-ENAs-42) (A) **D 87**

Orbits
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) (A) **Ja 109**

Order Defects
Elimination of Branch, Grashof, and Order Defects in Path-Angle Generation and Function Generation Synthesis (78-DET-16) (A) **D 89**

O'Reilly, W. J. A High-Effectiveness Regenerator Design Concept (78-GT-78) (A) **Ag 105**

Ores
Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) (A) **Ja 101**

Organic Contaminants
ASME Urges EPA to Go Slowly on Drinking Water Filtration (NR) **D 52**

Organizational Unity
Improving Organizational Cross-Links (C) **Ag 49**

Orifice Meters
Numerical Solutions for Laminar Orifice Flow (77-WA/FE-13) (A) **Ap 95**

O-Rings
The Dynamic Characteristics of O-Rings (77-DET-27) (A) **Ja 110**

Orner, G. M. Dry-Ice, Liquid-Pulse-Pump, Portable Cooling System (78-ENAs-41) (A) **D 87**

Orthmorphic Rheological Model
An Orthmorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) (A) **Je 107**

Orthonormal Functions
Heat Transfer in Multiply Connected Regions (77-WA/HT-15) (A) **Ap 103**

Orthosis Systems
The Kinematic and Force Analysis of Upper Extremity-Orthosis Systems (78-DET-51) (A) **D 93**

Orthotics-Prosthetics
Real-Time Force Line Visualization: Bioengineering Applications (77-WA/Bio-6) (A) **Mr 97**

Ortolano, R. J. Long Arc Shrouding—A Reliability Improvement for Untuned Steam Turbine Blading (77-JPGC-Pwr-12) (A) **Mr 89**; The Surface Condenser as an Environmental Barrier (78-JPGC-Pwr-17) (A) **D 83**

Osaka, Y. Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/Prod-32) (A) **Je 107**

Oscillating Airfoils
Aerodynamic Force and Moment on Oscillating Airfoils in Cascade (78-GT-181) (A) **S 75**

Oscillating Blades
A Rational Analysis of Periodic Flow Perturbation in Super-

sonic Two-Dimensional Cascade (78-GT-176) (A) **S 74**

Oscillating Cascades
Aeroelastic Stability Analysis of Supersonic Cascades (78-GT-151) (A) **Ag 115**

Oscillating Flat Plate
Laminar Shear Layer Due to a Semi-Infinite Thin Flat Plate Oscillating with Zero Mean Velocity (77-WA/FE-16) (A) **Ap 95**

Oscillations
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) (A) **F 123**

Oscillatory Processes
Simple Finite-Time Settling Control and Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) (A) **Je 103**

Oscillatory Temperature
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) (A) **Je 101**

Oser, H. The European Life Sciences Experiments on Board the First Spacelab Mission (78-ENAs-24) (A) **N 112**

O'Shea, D. C. Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) (A) **Mr 86**

Osinski, R. J. Atomic Issues (C) **Ji 43**

Osman, A. E. M. Determination of Dynamic Characteristics of an Impact Forming Machine Structure (77-WA/Prod-5) (A) **My 102**

Osman, M. O. M. Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) (A) **F 131**; Dynamic Accuracy of Hybrid Profiling Mechanisms in Cam Manufacturing (77-WA/DE-3) (A) **Mr 93**; Optimal Design of Multi-Edge Cutting Edge Cutting Tools for BTA Deep-Hole Machining (78-DET-66) (A) **D 94**

Oster, C. A. Well-Hole Temperature Distribution in the Presence of Aquifers—A Parametric Study (77-Pet-76) (A) **Ja 106**

Ostergren, W. J. A Linear Uniaxial Damage Accumulation Law for Creep-Fatigue Interaction (78-PVP-63) (A) **N 119**

Ostiguy, G. Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) (A) **Mr 95**

Ostrach, S. Effect of Stabilizing Thermal Gradients on Natural Convection in Rectangular Enclosures (78-HT-42) (A) **O 97**

Outage Factors
Outage Factors—An Aid to Analyzing Electric Generating Unit Reliability (77-JPGC-Pwr-9) (A) **Mr 88**

Outdoor Laboratories
Parks for Environmentalists (ES) **Mr 19**

Output Circuits
Output Circuit Selection and Output Feedback in Fluid Logic Synthesis (77-WA/Flcs-11) (A) **Ap 98**

Output Feedback
Output Circuit Selection and Output Feedback in Fluid Logic Synthesis (77-WA/Flcs-11) (A) **Ap 98**

Output Voltage
Space Charge Reduction in EHD Via Fluidic Switching (77-WA/Ener-3) (A) **My 93**

Overmyer, K. M. Measurements of Temperature Distributions at Electrosurgical Dispersive Electrode Sites (77-WA/HT-47) (A) **My 100**

Overshoot Processes
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) (A) **Je 103**

Owen, W. H. Atomic Issues (Cont'd.) (C) **Ag 52**

Oxygen
Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) (A) **Ap 98**
Oxygen: 2000 Tons/Day **Ja 38**
Water Electrolysis System: H_2 and O_2 Generation (78-ENAs-3) (A) **N 110**

Oxygen Sources
Development of Rescue and Escape Breathing Apparatus (78-ENAs-1) (A) **N 110**

P

Pacemakers
Long-Life Lithium Pacemaker (IF) **F 63**

Pack, C. R. Marine Spey—SM1A Propulsion Module (78-GT-58) (A) **Ji 94**

Packaged Food
Food Packages for Space Shuttle (78-ENAs-13) (A) **N 111**

Packed Beds
Heat Transfer in Packed Beds at Low Reynolds Number (78-HT-46) (A) **O 97**

Pad Bearings
A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) (A) **Ja 109**

Page, K. G. Marine Spey—SM1A Propulsion Module (78-GT-58) (A) **Ji 94**

Pai, D. H. Intermediate Heat Exchanger Development for the Clinch River Breeder Reactor Plant (77-WA/NE-10) (A) **Je 101**

Paidousis, M. P. Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) (A) **F 123**

Palazotto, A. N. A New Approximate Approach for Elastic Body Contact in Roller Bearings (A) **S 74**

Palen, J. W. Critical Review of Correlations for Predicting Two-Phase Flow Pressure Drop Across Tube Banks (77-WA/HT-23) (A) **Ap 104**

Pallet Loader
Pallet Loader Boosts Productivity (BTR) **Ag 58**

Palme, H. S. Surveillance Capsule Results from the Ocone Class Reactors (78-Mat-22) (A) **O 101**

Palmer, J. H. Why Registration? **D 16**

Palmer, R. S. Program to Establish LMFBR Commercialization (77-JPGC-NE-23) (A) **Mr 92**

Palmer, R. S. J. Performance of Composite Flat Belt Drive Materials Under Simulated Power Transmission (77-DET-167) (A) **F 130**

Palmonino, G. E. The Impact on Power Plant Design of Sulfur Distribution in Coal (78-JPGC-Pwr-13) (A) **D 83**

Pamidi, P. R. On Velocity Fluctuation in Skew Four-Bar Mechanisms (78-DET-45) (A) **D 92**

Pampreen, R. Annular Diffuser Performance for an Automotive Gas Turbine (78-GT-147) (A) **Ag 114**

Pan, C. H. T. Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) (A) **Mr 86**

Pan, R. B. Effects of Strain-Hardening on Rock/Bit-Tooth Interaction (77-Pet-70) (A) **Ja 105**

Pandit, S. M. Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) (A) **Je 107**

Panton, J. The Radial Turbine as a Ceramic Component (78-GT-178) (A) **S 75**

Panton, R. L. Performance of Rotary Bed Silica Gel Solid Desiccant Dryers (78-HT-36) (A) **O 95**; Peristaltic Pumping by a Lateral Bending Wave (77-WA/Bio-12) (A) **Ap 99**

Papalya, N. Optimum Design for Class 1 Nuclear Piping (78-PVP-81) (A) **N 121**

Pappas, M. A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) (A) **Ja 111**

Parallel Shafts
Displacement Analysis of Spatial 7R Mechanisms Suitable for Constant-Velocity Transmission Between Parallel Shafts (78-DET-88) (A) **D 88**

Parameter Effects
The Effect of Certain Major Parameters on the Annual Effectiveness of Solar Systems for Residential Dwellings (77-WA/Sol-3) (A) **My 97**

Parametric Analyses
The Prospects for Lightweight Ship Propulsion Systems (78-GT-179) (A) **S 74**

Parametric Methods
On the Minimum-Commitment Method for Correlation of Creep-Rupture Data (78-Mat-18) (A) **O 100**

Parametric Studies
Well-Hole Temperature Distribution in the Presence of Aquifers—A Parametric Study (77-Pet-76) (A) **Ja 106**

Paranjpe, P. A. Jet Curtain Flameholder for Aircraft Afterburners (78-GT-95) (A) **Ag 107**

Parker, A. T. An Evaluation Technique for Determining the Cost Effectiveness of Condition Monitoring Systems (78-GT-166) (A) **Ag 116**

Parker, G. A. A Planar Fluidic Flowmeter Applicable to Respiratory Flows (77-WA/Flcs-1) (A) **Ap 97**

Parker, H. W. *(author)* Air Pollution (CB) **Je 112**

Parker, R. J. Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) (A) **Mr 86**; Lubrication of High-Speed Large Bore Tapered-Roller Bearings (77-Lub-13) (A) **F 133**; Rolling-Element Fatigue of AMS 5749 Corrosion Resistant High Temperature Bearing Steel (77-Lub-30) (A) **Mr 87**

Parks, D. M. On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) (A) **O 101**

Pars Plana Vitrectomy
Instrument Design for Vitreous Surgery Via the Pars Plana (77-WA/Bio-1) (A) **Mr 97**

Parsons, J. Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**

Part-Span Dampers
A Design Point Correlation for Losses due to Part-Span Dampers on Transonic Rotors (78-GT-153) (A) **Ag 115**

Part-Through Thickness Defects
Ultrasonic Monitoring of Growth of Part-Through Thickness Defects at 290°C (78-NE-12) (A) **N 116**

Particle Accelerators
On the Trail of the Quark (BTR) **D 37**

Particle Densities
Model for Radiation Diagnostics in Turbulent Arcs (78-HT-13) (A) **O 93**

Particle Position Measurement
Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) (A) **Ap 94**

Particle Separators
Analysis of Flows Within Particle Separators (77-WA/FE-21) (A) **Ap 96**

Particulate Beds
Natural Convection Heat Transfer in Beds of Inductively Heated Particles (77-WA/HT-2) (A) **Ap 101**

Particulate Control
Problems in Control of Particulates in Bulk Material Handling (77-WA/APC-5) (A) **My 102**

Particulate Emissions
The Effects of Smoke Suppressant and Corrosion Inhibiting Fuel Additives on the Particulate and Gaseous Emissions from a Utility Gas Turbine (78-GT-64) (A) **Ji 95**

Paschkis, V. Appropriate Technology for Developed Countries (77-WA/TS-4) (A) **My 98**; Other Looks at "Energy Realities" (C) **Ji 44**; To Whom Much is Given. . . (C) **Ap 46**

Passenger Car
Off-the-Shelf Electric (BTR) **N 60**

Passenger Comfort
Evolution of The Turboprop for High Speed Air Transportation (78-GT-201) (A) **S 77**

Passenger Equipment
Progress in Railway Mechanical Engineering (1976-1977 Report of Survey Committee) Cars and Equipment (77-WA/RT-5) (A) **Mr 85**

Passenger Riding Comfort
The Prediction of Passenger Riding Comfort from Acceleration Data (77-WA/Aut-6) (A) **Je 102**

Passenger Service
Energy Requirements of the Rail Mode (78-RT-1) (A) **O 90**

Passenger Vehicles
Coming Next: the Hybrid Car (ES) **N 20**

Passive Solar Systems
Periodic Temperature of a Finite Wall Subjected to Periodic Heat Flux and Exposed to a Fluid with Periodic Temperature Variation (77-WA/Sol-6) (A) **My 97**

Patarini, V. Hot Corrosion of Gas Turbine Components (78-GT-82) (A) **Ag 106**

Patch Contact
The Thermoelastic Patch Contact Problem for Large Peclet Number (77-Lub-32) (A) **Mr 87**

Patel, B. R. Direct Blade Force Measurements in Transonic Cascade Flows (78-GT-45) (A) **Ji 93**

Patent Agreements
Employer—Employee Patent Agreements (PS) **Je 80**

Patent Infringement
Protecting Your Intellectual Property **Ja 27**

Patents
Patent Issue Issue in May Issue (C) **Ag 49**
Pensions, Patents, Employment (PS) **N 86**

Paterson, J. *(author)* Information Methods: For Design and Construction (CB) **Ja 117**

Path-Angle Generation
Elimination of Branch, Grashof, and Order Defects in Path-Angle Generation and Function Generation Synthesis (78-DET-16) (A) **D 89**

Patir, N. An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) (A) **Mr 86**

Pattern Control Actuator Design
Pattern Control Actuator Design for Electronically Controlled Sewing Machine (78-DE-13) (A) **S 74**
Pattern Control System
Pattern Control System Requirements for an Electronic Consumer Sewing Machine (78-DE-12) (A) **S 72**
Patterson, J. R. Charlie's Angels or a Ph.D.? (C) **Ap 46**
One Manufacturer's View of Gas Turbine Service (78-GT-49) (A) **Jl 93**
Paul, J. K. *(author)* Solar Heating and Cooling: Recent Advances (CB) **Mr 101**
Paul, P. H. Radiative Transfer in Hartmann MHD Flow (78-HT-18) (A) **O 94**
Payne, R. *(editor)* Stress at Work (CB) **D 98**
Peak Yarn Tension
Calculation of Peak Tension During Ring-Spinning (77-Tex-6) (A) **F 132**
Pearce, J. A. Measurements of Temperature Distributions at Electrosurgical Dispersive Electrode Sites (77-WA/HT-47) (A) **My 100**
Pearson, S. W. Thermal Performance Verification of Thermal Vertical Support Members for the Trans-Alaska Pipeline (77-WA/HT-34) (A) **Ap 105**
Pease, C. B. Dynamic Response Testing of Gas Turbines (78-GT-31) (A) **J 90**
Peat Carbonization
Peat for Power (BTR) **My 55**
Pechacek, R. High Pressure, Quick Acting Closure for Large Diameter, Full Opening, Nuclear and Petro-Chem Pressure Vessels (78-PVP-74) (A) **N 120**
Peck, J. Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) (A) **Ja 101**
Pedersen, E. S. Call for Unification (C) **Je 51**
Pellini, W. S. The Application of Fracture Control Principles to Freight Car Center-Sill Structures (78-RT-7) (A) **O 91**
Penetrative Convection
Finite Amplitude Instability and Penetrative Convection in a Rotating Fluid (78-HT-39) (A) **O 96**
Peng, S. S. A Model for Axial Splitting Under Uniaxial Compression (77-Pet-73) (A) **Ja 106**
Pension Legislation
Pension Legislation: How You Can Help **Mr 74**
Pension Plans
Major Firms Show Deficits in Funding of Employee Pension Plans (NR) **My 67**
Pensions
Pensions, Patents, Employment (PS) **N 86**
Panterson, C. A. Predicting Sonic Vibration in Cross Flow Heat Exchangers—Experience and Model Testing (77-WA/DE-28) (A) **Mr 96**
Perera, W. G. Fluid Forces in Real Heat Exchanger Tube Vibrations (77-DET-146) (A) **F 128**
Perforated Plates
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) (A) **Mr 92**
Performance Analysis
Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) (A) **Ja 108**
1978 R & D Forecast: No Real Growth (NR) **F 64**
Performance Appraisal
A New Appraisal of Reynolds Number Effects on Centrifugal Compressor Performance (78-GT-149) (A) **Ag 114**
Performance Characteristics
Design Features and Performance Characteristics of a Low Horsepower Multipurpose Pump (77-Pet-64) (A) **Ja 105**
Experimental Investigation of Performance Characteristics of Flexible Shaft Coupling (77-DET-129) (A) **F 127**
Performance Diagnostic System
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) (A) **Ag 109**
Performance Evaluation
The Bottom Line on Nuclear Performance (ES) **S 20**
Design of High-Efficiency Flat Plate Solar Collectors for Space and Water Heating (78-DE-7) (A) **S 73**
How to Write a Practical Quality Assurance Manual **N 33**
Performance and Cost Evaluation for a Thermionic Topping Power Plant (77-WA/Ener-7) (A) **My 94**
Performance Improvement
Designing Mechanical Face Seals for Improved Performance. Part 1 - Basic Configurations **N 38**; Part 2—Lubrication **D 18**
Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**
Performance Optimization
Performance Optimization of Existing Gas Pipeline Systems (77-Pet-85) (A) **Ja 107**
Performance Parameters
Design and Calculated Performance and Cost of the ECAS Phase II Open Cycle MHD Power Generation System (77-WA/Ener-5) (A) **My 94**
Radial Compressor Development as Dictated by the Requirements of Large Turbochargers (78-GT-187) (A) **S 75**
Performance Prediction Procedures
Rationalization of Empirical Loss Coefficients and Their Application In One Dimensional Performance Prediction Procedures for Centrifugal Compressors (78-GT-177) (A) **S 75**
Performance Reliability
Human Performance Reliability—Its Measurement and Impact on System Reliability (78-DE-17) (A) **S 74**
Performance Simulation
DREB: A New Tool for Rolling Bearing Performance Simulation (78-DE-15) (A) **S 73**
Performance Standards
Vehicle Performance Standards (NB) **Ag 75**
Performance Tests
A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) (A) **Ja 103**
Perfusive Term Isolation
Determination Tissue Perfusion from In Vivo Thermal Conductivity Measurements (77-WA/HT-40) (A) **My 99**
Periodic Boundary Conditions
Thermal Development of Flow in the Entrance Region of a Channel with Periodic Boundary Conditions (78-HT-27) (A) **O 95**
Periodic Flow Perturbation
A Rational Analysis of Periodic Flow Perturbation in Supersonic Two-Dimensional Cascade (78-GT-176) (A) **S 74**
Periodic Heat Flux
Periodic Temperature of a Finite Wall Subjected to Periodic Heat Flux and Exposed to a Fluid with Periodic Temperature Variation (77-WA/Sol-6) (A) **My 97**
Periodic Loads
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) (A) **Ja 113**
Peristaltic Pumping
Peristaltic Pumping by a Lateral Bending Wave (77-WA/Bio-12) (A) **Ap 99**
Perl, E. Extensional and Shear Strain Damping Mechanisms in Constrained Layer Damped Vibration (77-DET-74) (A) **Ja 114**
Perlman, R. M. A Constant Strain Element Model Stress Accuracy Prediction Method—ESP (78-PVP-65) (A) **N 119**
Permafrost
Loading Mechanisms in Thawed Permafrost Around Arctic Wells (77-Pet-22) (A) **Ja 100**
Permafrost Environment
Cementing Through Permafrost Environment (77-Pet-37) (A) **Ja 102**
Permafrost Thawing
Approximate Thawing of Permafrost Beneath a Buried Pipe (77-WA/HT-18) (A) **Ap 103**
Permeability
The influence of Drying and Stress on the Permeability of Texas Lignite (77-Pet-26) (A) **Ja 101**
Perreira, N. D. Predicting Acoustical Noise Generation in Complex Mechanical Systems (78-DET-60) (A) **D 93**
Perry Seal
Morrison and Parry Seals for Water Pressure up to 345 MPa (78-PVP-13) (A) **O 103**
Perrin, J. S. The Rule of Codes, Standards and Regulations in Nuclear Pressure Vessel Surveillance Programs (78-Mat-24) (A) **O 101**
Personnel Programs
Effective Technology Transfer—From Laboratory to Production Line **Ap 32**
Persson, U. Load Distribution in Timing Belts (77-DET-100) (A) **F 124**
Perturbation
Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**
Peristaltic Pumping by a Lateral Bending Wave (77-WA/Bio-12) (A) **Ap 99**
Perturbation Solutions to Phase Change Problem Subject to Convection and Radiation (77-WA/HT-16) (A) **Ap 102**
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) (A) **Ag 115**
Steady Pressure Gradient Assisted Plane Couette Flow with Temperature Dependent Viscosity (78-HT-28) (A) **O 95**
Peters, D. A. A Simple Dynamic Model for Stimulating Draft-Gear Behavior In Rail-Car Impacts (78-RT-2) (A) **O 90**
Peters, W. J. The F-16 Environmental Control System (78-ENAs-11) (A) **N 112**
Peterson, C. R. The RAPIDEX Conical Reamer (77-Pet-31) (A) **Ja 101**
Peterson, M. B. Costs and Causes of Maintenance in a Ship's Diesel Propulsion System (77-WA/Lub-2) (A) **Jl 96**
Peterson, J. R. Commercial Powerplant Design Development for the Coal Fired Combined Cycle (77-JPGC-GT-6) (A) **Mr 93**
Peterson, R. E. A Specialized Microprocessor System for Decompression Management of Deep Diving (77-WA/Oce-7) (A) **Ap 93**
Petrie, T. W. Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) (A) **My 102**
Petrina, P. Safety Index of Nuclear Concrete Containment Structures (78-PVP-106) (A) **N 124**
Petro-Chem Pressure Vessels
High Pressure, Quick Acting Closure for Large Diameter, Full Opening, Nuclear and Petro-Chem Pressure Vessels (78-PVP-74) (A) **N 120**
Petrochemical Industries
Properties of a Special A 387gr5 Steel (77-Pet-59) (A) **Ja 104**
Petroleum
The Application of Turboexpanders for Energy Conservation (77-Pet-17) (A) **Ja 100**
An Automatic Blending and Injection System for Tertiary Oil Recovery by Chemical Flooding (77-Pet-44) (A) **Ja 103**
Cavijet® Augmented Deep-Hole Drilling Bits (77-Pet-54) (A) **Ja 104**
Cementing Through Permafrost Environment (77-Pet-37) (A) **Ja 102**
Ceramic Heat Exchangers May Save Petroleum (BTR) **F 59**
Challenges of Deep-Water Drilling (BTR) **S 49**
A Continuous Recirculation System for In-Bin Blending of Granular Solids (77-Pet-63) (A) **Ja 105**
Conversion of Gas Pipeline to Liquids Service (77-Pet-18) (A) **Ja 100**
Deep-Water Oil (BTR) **O 50**
Deep Water Position Measuring System for Dynamically Positioned Ships (77-Pet-39) (A) **Ja 102**
Derivation of Cost Factor for Novel Mining Energy Source Minerals (77-Pet-46) (A) **Ja 103**
Design Considerations for Surface-Controlled Subsurface Safety Valve Systems (77-Pet-45) (A) **Ja 103**
Design Features and Performance Characteristics of a Low Horsepower Multipurpose Pump (77-Pet-64) (A) **Ja 105**
Development of Sumitomo High Toughness Process (SHT) for Arctic Grade Line Pipes (77-Pet-61) (A) **Ja 104**
Development of 25,000 kW Class Two-Shaft Gas Turbine (77-Pet-43) (A) **Ja 102**
Downhole Measurements of Thermal Conductivity in Geothermal Reservoirs (77-Pet-23) (A) **Ja 100**
Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) (A) **Ja 106**
Dynamically Damped Floating Platforms (77-Pet-58) (A) **Ja 104**
Economic Factors in Mechanical Raise Boring (77-Pet-29) (A) **Ja 101**
Effects of Strain-Hardening on Rock/Bit-Tooth Interaction (77-Pet-70) (A) **Ja 105**
The Elastallic Seal—A New Concept in Mechanical Connection of Marine Pipelines (77-Pet-84) (A) **Ja 107**
Ethyl Alcohol as Fuel (EN) **O 71**
Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) (A) **Ja 101**
Force Systems Acting on Arbitrarily Directed Tubular Members in the Sea (77-Pet-38) (A) **Ja 102**
Fracture Discontinuities and Structural Analysis in Resource Recovery Endeavors (77-Pet-32) (A) **Ja 101**
Gas Pressure Bonding of Strapax (77-Pet-72) (A) **Ja 105**
Geothermal Drill Bit Improvement—Specific Application to the Geysers (77-Pet-67) (A) **Ja 105**

Geothermal Energy: Heat Extraction From Hot Dry Rock Masses (77-Pet-41) (A) **Ja 102**

Glomar Challenger's Deep Water Reentry Cone/Dual Casing Hanger System (77-Pet-75) (A) **Ja 106**

Improved LNG Semi Trailer Design (77-Pet-57) (A) **Ja 104**

Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) (A) **Ja 101**

The Influence of Drying and Stress on the Permeability of Texas Lignite (77-Pet-26) (A) **Ja 101**

Loading Mechanisms in Thawed Permafrost Around Arctic Wells (77-Pet-22) (A) **Ja 100**

Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Ends (77-Pet-42) **Ja 101**

Mechanical Systems for Handling Drill Pipe, Riser, and Casing (77-Pet-77) (A) **Ja 106**

The Merrick "Hot Piper" Automated Pipe Welding System (77-Pet-62) (A) **Ja 104**

A Method for Predicting Fired Heater Performance (77-Pet-10) (A) **Ja 100**

A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) (A) **Ja 103**

A Model for Axial Splitting Under Uniaxial Compression (77-Pet-73) (A) **Ja 105**

A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) (A) **Ja 102**

A New Approach to the Design of Wet-Gas Pipelines (77-Pet-14) (A) **Ja 100**

Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) (A) **Ja 101**

The Offshore LNG Facility—1977 Status Review (77-Pet-83) (A) **Ja 106**

Optimum Development of Off-shore Oilfield Operations (77-Pet-50) (A) **Ja 103**

Origin and Spacing of Cleats in Coal Beds (77-Pet-24) (A) **Ja 101**

Performance Optimization of Existing Gas Pipeline Systems (77-Pet-85) (A) **Ja 107**

Pile Foundations in Frozen Soils (77-Pet-79) (A) **Ja 106**

Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) (A) **Ja 106**

Properties of a Special A 387gr5 Steel (77-Pet-59) (A) **Ja 104**

The RAPIDEX Conical Reamer (77-Pet-31) (A) **Ja 101**

Results of Sulfide Stress Cracking Tests in Different Laboratories on SAE 4135 Steel Modified with 0.75 Percent Mo and 0.035 Percent Cb (77-Pet-48) (A) **Ja 103**

Rock Breakage with Pulsed Water Jets (77-Pet-78) (A) **Ja 106**

Seals for Geothermal Roller Drill Bits (77-Pet-53) (A) **Ja 103**

Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) (A) **Ja 103**

Shear Fracture Propagation by DCB Testing (77-Pet-33) (A) **Ja 101**

On the Stimulation of Geothermal Reservoir by Downward Hydraulic Fracturing (77-Pet-81) (A) **Ja 107**

Stratapax Drill Bit for Gulf Coast Drilling (77-Pet-74) (A) **Ja 106**

Stress Response Investigations Related to In-Situ Gasification of Coal (77-Pet-25) (A) **Ja 101**

Techniques of Pilot-Scale Drilling Research (77-Pet-68) (A) **Ja 105**

Torsional Response of Compressor Shaft Systems During Synchronous Motor Startup. Part I—Analytical Model (77-Pet-49) (A) **Ja 103**; Part II—Field Measurement Techniques (77-Pet-60) (A) **Ja 104**; Part III—Abnormal Motor Conditions (77-Pet-56) (A) **Ja 104**

Uranium Solution Mining—State of the Art (77-Pet-47) (A) **Ja 103**

Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) (A) **Ja 106**

Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-69) (A) **Ja 105**

Well-Hole Temperature Distribution in the Presence of Aquifers—A Parametric Study (77-Pet-76) (A) **Ja 106**

West Coast—Mid-Continent Pipeline Project. (Engineering/Management Phases for Conversion of Natural Gas Transmission Systems to Crude Oil Transportation) (77-Pet-65) (A) **Ja 105**

World Offshore Developments (IF) **S 57**

Petroleum Refineries

Lube Oil Project (IF) **O 60**

Petroski, H. J. Dugdale Plastic Zone Sizes for Edge Cracks (78-PVP-98) (A) **N 123**; February Feedback (C) **Ap 45**

Pettit, R. B. Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/Sol-1) (A) **My 97**

Petyt, M. Dynamic Response of Packet of Blades by the Finite Element Method (77-DET-70) (A) **Ja 114**

Pfeifer, G. D. Bearing Compartment Seal Systems for Turbomachinery in Direct-Cycle HTGR Power Plants (78-GT-38) (A) **Jl 91**

Pfender, E. Critical Steady-State Heat Fluxes Causing Melting or Evaporation of the Anode in a High Intensity Arc (78-HT-10) (A) **O 93**; Heat Transfer in the Anode Region of High Intensity Arcs (78-HT-9) (A) **O 93**

Phase Change

Perturbation Solutions to Phase Change Problem Subject to Convection and Radiation (77-WA/HT-16) (A) **Ap 102**

Phase Change in Liquid Face Seals (77-Lub-12) (A) **Mr 85**

Phase Separation Processes

Analysis of Transient Heat Transfer in Porous Solids with Application Toward Phase Separation Processes (77-WA/HT-13) (A) **Ap 102**

Phelippeau, G. The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**

Phenix Plant Operation

Phenix Plant Operation and Maintenance Experience (78-JPGC-NE-2) (A) **D 84**

Philipson, P. H. Application of Goal Programming to Machinability Data Optimization (77-DET-19) (A) **Ja 108**

Phillips, C. A. Left Ventricular Area Ratios: Comparison of the Circumferential and Longitudinal Directions and Correlation with Left Ventricular Function (77-WA/Bio-11) (A) **Ap 99**

Philpot, M. G. Future Prospects for Naval Propulsion Gas Turbines (78-GT-106) (A) **Ag 109**

Photoelastic Evaluation

A Photoelastic Evaluation of the Method of Measuring Crack Arrest Toughness with a Tapered DCB Specimen (78-Mat-15) (A) **O 100**

Photograph Restoration

Restoring Old Photos via Autoradiography (BTR) **My 54**

Photosynthesis

Spinach Power Harnessed at Ohio State University (EN) **Jl 53**

Photovoltaic Panels

Photovoltaic Solar Panels (ES) **O 46**

Photovoltaics

Money and Management for Photovoltaics (ES) **D 14**

Photovoltaic Power Generation (CB) **D 97**

Pushing Down the Cost of Photovoltaics (ES) **Jl 23**

Phukan, A. Pile Foundations in Frozen Soils (77-Pet-79) (A) **Ja 106**

Physical Metallurgy

Structure and Properties of Engineering Materials (CB) **My 106**

Physical Stress

Physical vs. Psychological Stress: Different Heart Rhythm (BTR) **N 64**

Physics

The Quest for Absolute Zero: The Meaning of Low Temperature Physics (CB) **Mr 100**

Physics Research

Carter O.K.'s Energy Accelerator (NB) **Ap 71**

Pichot, P. Selection of Compressors and Driving Equipment (78-GT-168) (A) **Ag 116**

Pick, R. J. Morrison and Parry Seals for Water Pressures up to 345 MPa (78-PVP-13) (A) **O 103**

Pickering, W. F. *(author)* Pollution Evaluation: The Quantitative Aspects (CB) **Jl 100**

Pierce, G. Tidal Thoughts (C) **Ja 50**

Pierce, R. E. Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) (A) **Mr 86**

Pierre, B. An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Jl 94**

Pietruszkiewicz, J. History and Development of Condensers at the Geysers Geothermal Power Plant (78-JPGC-Pwr-18) (A) **D 84**

Piezoelectric Polymers

Materials That Perform Under Pressure (BTR) **My 60**

Pile Foundations

Pile Foundations in Frozen Soils (77-Pet-79) (A) **Ja 106**

Pile Hammer

Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) (A) **Ja 106**

Pilkey, W. D. The Riccati Transfer Matrix Method (77-DET-32) (A) **Ja 110**; Transient Response of a Rotor in Damped Bearings (77-DET-21) (A) **Ja 109**

Pillsbury, P. W. Investigating Combustion Turbine Burner Performance with Coal Derived Liquids Having High Fuel Bound Nitrogen (78-GT-126) (A) **Ag 111**

Pilot Gas Control

Good News on Pilot Gas Control (ES) **O 47**

Pilot Plants

Badger's Energy Commitments (ES) **N 20**

"CANWEL"—A Canadian System for Domestic Waste Management and Energy Reclamation (77-WA/Fu-2) (A) **My 92**

Design of a Pressurized Fluid Bed Coal Fired Combined Cycle Electric Power Generation Plant (78-GT-135) (A) **Ag 113**

Ocean Power—A Growing Reality (ES) **N 20**

Solar One—A 10-MW Solar Thermal Central Receiver Pilot Plant Project (78-JPGC-Pwr-10) (A) **D 82**

Solid Waste Treatment Plant (IF) **Ja 69**

Studies, Studies, and More Studies (ES) **Ag 23**

TVA's Cocurrent Scrubber Evaluation (77-WA/APC-8) (A) **My 102**

Pilot Project

NSPE Urges Action on Nuclear Waste Disposal (NB) **N 79**

Slagging and Fouling Properties of Coal Ash Deposits as Determined in a Laboratory Test Facility (77-WA/Fu-6) (A) **My 93**

Pilot-Scale Drilling Research

Techniques of Pilot-Scale Drilling Research (77-Pet-68) (A) **Ja 105**

Pimenta, M. M. The Structure of a Boundary Layer on a Rough Wall with Blowing and Heat Transfer (78-HT-3) (A) **O 92**

Pindera, J. T. Ultrasonic Monitoring of Growth of Part-Through Thickness Defects at 290°C (78-NE-12) (A) **N 116**

Pinion-Gear Systems

Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) (A) **Ja 112**

Pinson, J. D. Analysis of Transient Heat Transfer in Porous Solids with Application Toward Phase Separation Processes (77-WA/HT-13) (A) **Ap 102**

Pipe Flow

Turbulence Scales in a Pipe Flow with a Slightly Heated Wall (78-HT-4) (A) **O 92**

Pipe Inlet Installations

Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) (A) **Ap 100**

Pipe Spans

Reduction of Allowable Seismic or Weight Piping Span Length Due to Presence of a Concentrated Mass (78-PVP-19) (A) **O 104**

Pipe Supports

Locating Pipe Supports for Combined Thermal and Seismic Loading (77-PVP-63) (A) **Ja 108**

Pipe Welding System

The Merrick "Hot Piper" Automated Pipe Welding System (77-Pet-62) (A) **Ja 104**

Pipelines

Advances in Frost Heave Prediction and Mitigation Methods for Pipeline Application (77-WA/HT-19) (A) **Ap 103**

Alaska Pipeline Honored (NB) **Je 75**

Better Pipelines Needed Offshore (ES) **Mr 18**

Conversion of Gas Pipeline to Liquids Service (77-Pet-18) (A) **Ja 100**

Economic Evaluation Technique of Selecting Turbines for Natural Gas Pipelines (78-GT-67) (A) **Jl 95**

Effects of Variation in Velocity Profiles on a Simulated Submarine Pipeline (77-WA/Oce-4) (A) **Ap 92**

The Elastallic Seal—A New Concept in Mechanical Connection of Marine Pipelines (77-Pet-84) (A) **Ja 107**

The Internally Insulated Liquid Natural Gas Pipeline for Arctic Gas Recovery (77-WA/HT-17) (A) **Ap 103**

Kenya Pipeline Completed (IF) **O 60**

Natural Gas Pipeline Expanded (IF) **My 64**

A New Approach to the Design of Wet-Gas Pipelines (77-Pet-14) (A) **Ja 100**

Performance Optimization of Existing Gas Pipeline Systems (77-Pet-85) (A) **Ja 107**

Stress Corrosion Crack Growth and Fracture Predictions for BWR Piping (78-Mat-23) (A) **O 101**

Thermal Performance Verification of Thermal Vertical Support Members for the Trans-Alaska Pipeline

(77-WA/HT-34) (A) **Ap 105**

Pipes

An Analysis of the Propagation of a Brittle Circumferential Crack in a Pipe Subjected to Axial Stresses (78-PVP-101) (A) **N 124**

Approximate Thawing of Permafrost Beneath a Buried Pipe (77-WA/HT-18) (A) **Ap 103**

Dynamic Plastic Response of an Immersed Pipe (77-PVP-8) (A) **Ja 107**

The Effect of Thickness Variations on the Behaviour of Smooth Curved Pipes Under External Bending (78-PVP-93) (A) **N 123**

Fatigue Crack Growth Model for Part-Through Flaws in Plates and Pipes (78-Mat-9) (A) **O 99**

Flexibility Analysis of Buried Pipe (78-PVP-82) (A) **N 121**

On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) (A) **O 101**

Heat Transfer in a Pipe Rotating Around a Perpendicular Axis (77-WA/HT-39) (A) **My 99**

Liquid Metal Heat Pipe Performance in the Presence of a Transverse Magnetic Field (78-ENAs-20) (A) **N 112**

Sediment Control for a Power Plant Intake Screenwell (77-JPGC-Pwr-15) (A) **Mr 89**

Simplified Seismic Analysis Method for Small Pipes (78-PVP-43) (A) **N 117**

PIPESD/HEAT

PIPESD/HEAT: A Transient Thermal Analyzer Evaluating Class 1 Piping Components According to Section III of the ASME Code (78-PVP-80) (A) **N 121**

Piping

Computer Code for Predicting the Dynamic Response of High Energy Piping, Pressure Vessels, and Shell Structures Subjected to Transient Loads and Impacts (78-PVP-33) (A) **N 116**

Design and Analysis of a Compact Array of (Class 1) Nuclear Piping for Large Anchor Movements and Seismic Supports (78-PVP-29) (A) **O 104**

Optimum Design for Class 1 Nuclear Piping (78-PVP-81) (A) **N 121**

Scale Models Replace Piping Drawings (BTR) **S 52**

Stress Analysis for the Design of Liquid Metal Piping in the Fast Flux Test Facility (78-PVP-21) (A) **O 103**

Structural Design of Piping for CANDU Nuclear Stations (78-NE-1) (A) **N 114**

Piping Components

Evaluation of the Functional Capability of ASME Section III Class 1, 2 and 3 Piping Components (78-PVP-83) (A) **N 122**

PIPESD/HEAT: A Transient Thermal Analyzer Evaluating Class 1 Piping Components According to Section III of the ASME Code (78-PVP-80) (A) **N 121**

Piping Loop

Attenuation of Weak Pressure Waves in a Simple Piping Loop (78-PVP-61) (A) **N 119**

Piping Stiffness

Consideration of Local Piping Stiffness in Dynamic Analysis by Piping Systems with Nonlinear Restraints (78-PVP-109) (A) **N 125**

Piping Systems

Analytical Experimental Correlation of a Nonlinear System Subjected to a Dynamic Load (78-PVP-37) (A) **O 105**

Computation of Residual Stresses Due to Multipass Welds in Piping Systems (78-PVP-104) (A) **N 124**

Dynamic Analysis of Piping Systems Using Substructure (77-DET-144) (A) **F 128**

Pressure Transient Analysis in Piping Systems Including the Effects of Plastic Deformation and Cavitation (78-PVP-56) (A) **N 118**

Probabilitistic Stress Evaluation of Piping Systems Assuming Single Snubber Failures (78-PVP-107) (A) **N 124**

Rational and Economical Multicomponent Seismic Design of Piping Systems (78-PVP-84) (A) **N 122**

Response of Water-Filled Thin-Walled Pipes to Pressure Pulses: Experiments and Analysis (78-PVP-53) (A) **N 117**

Seismic Analysis of Piping Systems on Rocking Foundation Mat (78-PVP-40) (A) **N 117**

Pitch Line Pitting

An Experimental and Theoretical Study of the Effects of Simulated Pitch Line Pitting on the Vibration of a Geared System (77-DET-123) (A) **F 126**

Pitting

Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling Sliding Conditions (77-DET-47) (A) **Ja 112**

Pitting Can Be Caused by Inadequate Lubrication (77-DET-114) (A) **F 125**

The Pitting Performance of Hardened Steels (77-DET-39) (A) **Ja 111**

Pittroff, H. Stiffness of Machine Tool Spindles (77-WA/Prod-42) (A) **Je 108**

Pla-Barby, F. E. Performance of Rotary Bed Silica Gel Solid Desiccant Dryers (78-HT-36) (A) **O 95**

Plache, K. O. Coriolis/Gyroscopic Flow Meter (77-WA/FM-4) (A) **Ap 100**

Planar Elliptic Flaws

Fatigue Crack Growth Model for Part-Through Flaws in Plates and Pipes (78-Mat-9) (A) **O 99**

Planar Fluidic Flowmeter

A Planar Fluidic Flowmeter Applicable to Respiratory Flows (77-WA/Flcs-1) (A) **Ap 97**

Planar Linkages

Chebychev Approximations of Finite Point Sets with Application of Planar Kinematic Synthesis (78-DET-25) (A) **D 90**

Computer-Aided Synthesis of a Two-Degree-of-Freedom Planar Linkage for Function Generation (78-DET-30) (A) **D 90**

Planar Mechanisms

Analysis and Simulation of Planar Mechanism Systems Using Bond Graphs (78-DET-2) (A) **D 87**

The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) (A) **Ja 109**

Determination of the Critical Operating Speeds of Planar Mechanisms by the Finite Element Method Using Planar Actual Line Elements and Lumped Mass Systems (78-DET-37) (A) **D 91**

Elastodynamics of Planar Mechanisms Using Planar Actual Finite Line Elements, Lumped Mass Systems Matrix-Exponential Method, and the Method of "Critical-Geometry-Kineto-Elasto-Statics" (CGKES) (78-DET-26) (A) **D 89**

Elementary Synthesis of Damping in Conjunction with Planar Mechanisms (78-DET-49) (A) **D 92**

Planar Medium

Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) (A) **O 94**

Planar Rigid Linkages

Rapid Algorithms for Kinematic and Dynamic Analysis of Planar Rigid Linkages with Revolute Joints (78-DET-64) (A) **D 94**

Planar Symmetrical Motions

Symmetrical Algebraic Motions in the Plane (78-DET-40) (A) **D 92**

Planar Tangent Lines

Higher Order, Planar Tangent-Line Envelope Curvature Theory (78-DET-21) (A) **D 89**

Plane Couette Flow

Steady Pressure Gradient Assisted Plane Couette Flow with Temperature Dependent Viscosity (78-HT-28) (A) **O 95**

Plane Disk Windows

Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) (A) **Ap 92**

Plane Frames

Optimal Seismic Design of Plane Frames (77-DET-137) (A) **F 128**

Plane Stress

Asymmetric Branching of Cracks (77-WA/APM-16) (A) **Jl 98**

Plane-Stress Flywheel

Optimum Design of the Homogeneous Plane-Stress Flywheel (77-DET-112) (A) **F 125**

Plane Symmetric Contact

The Plane Symmetric Contact Problem for Dissimilar Elastic Semi-Infinite Strips of Different Widths (77-WA/APM-13) (A) **Jl 97**

Plane Toothed Wheel

Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) (A) **F 131**

Planes

Chebychev Approximations of Spatial Point Sets Using Spheres and Planes (78-DET-4) (A) **D 88**

Planetary Atmospheres

Changes in Uranus Atmosphere (BTR) **N 61**

Planetary Gear Trains

Design Analysis of an Epicyclic Rotary Pump Mechanism (78-DET-46) (A) **D 92**

Plant Availability Studies

Power System Economics: On Evaluation of Availability (78-JPGC-Pwr-3) (A) **D 82**

Plant Engineers

Plant Engineers and Managers Guide to Energy Conservation (CB) **F 135**

Plant Evaporators

Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**

Plants

All-Purpose Plant (BTR) **Ja 55**

Plasma Confinement Techniques

Fusion Energy (77-WA/NE-1) (A) **Je 100**

Plasma Contamination

Helium Blistering in Metals (78-Mat-5) (A) **O 99**

Plasma Heat Transfer

Effects of Joule Heating on Plasma Heat Transfer (78-HT-11) (A) **O 93**

Plasma Igniter

Plasma Igniter for Internal-Combustion Engines (BTR) **D 42**

Plasma Radii

Special Engineering Problems of TFTR (77-WA/NE-4) (A) **Je 100**

Plasma Temperature

Tokamak Reactors (77-WA/NE-3) (A) **Je 100**

Plastic Deformation

Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) (A) **Je 107**

Pressure Transient Analysis in Piping Systems Including the Effects of Plastic Deformation and Cavitation (78-PVP-56) (A) **N 118**

Plastic Fracture Mechanics

Fatigue Crack Propagation of Short Cracks (78-Mat-7) (A) **O 100**

Plastic Hulls

Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) (A) **Ap 92**

Plastic Methods

The Plastic Methods of Structural Analysis (CB) **Je 113**

Plastic Response

Dynamic Plastic Response of an Immersed Pipe (77-PVP-8) (A) **Ja 107**

Plastic Strain

A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) (A) **O 100**

Plastic Windows

Effect of Weathering and Submersion in Seawater on the Mechanical Properties of Acrylic Plastic (77-WA/Oce-5) (A) **Ap 92**

Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) (A) **Ap 92**

Plastic Zones

Dugdale Plastic Zone Sizes for Edge Cracks (78-PVP-98) (A) **N 123**

Plasticity

Cyclic Plasticity for Non-proportional Paths: Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) (A) **Je 110**

Fracture Analysis of the Adhesively Bonded Cracked Panels (77-WA/Mat-2) (A) **Je 108**

Plasticity Analysis

Effects of Strain-Hardening on Rock/Bit-Tooth Interaction (77-Pet-70) (A) **Ja 105**

Plastics

Plastics Design Contest (EN) **Ap 76**

Simplified Design with Graphite-Reinforced Plastics **Je 38**

Plastics Industry

Record-Setting Reinforced Plastics (NB) **Ap 71**

Plate Deformation

A High-Order Theory of Plate Deformation—Part 1: Homogeneous Plates (77-WA/APM-23) (A) **Jl 98**; Part 2: Laminated Plates (77-WA/APM-24) (A) **Jl 98**

Plate Filter

The Horizontal Plate Filter as a Torsional Vibration System with Vibration Absorption (77-DET-86) (A) **F 123**

Plate Fin Regenerators

Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) (A) **Jl 89**

Plates

Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) (A) **O 102**

Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) (A) **Mr 91**

Application of an Eigenfunction Expansion to the Determination of Stress-Intensity Factors (77-WA/GT-1) (A) **Ap 100**

The Application of Fracture Control Principles to Freight Car

Center-Sill Structures (78-RT-7) (A) **O 91**
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-46) (A) **Ja 112**
Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-88) (A) **F 122**
On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) (A) **Mr 93**
Double-Diffusive Instability in a Density-Stratified Fluid Along a Heated Inclined Wall (78-HT-43) (A) **O 97**
On the Dynamic Expansion of a Circular Hole in an Infinite Plate (77-WA/APM-21) (A) **Je 111**
Effect of Axial Force on Dynamic Fracture of a Beam or Plate in Pure Bending (77-WA/APM-22) (A) **Jl 98**
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) (A) **Mr 92**
Extensional and Shear Strain Damping Mechanisms in Constrained Layer Damped Vibration (77-DET-74) (A) **Ja 114**
Fatigue Crack Growth Model for Part-Through Flaws in Plates and Pipes (78-Mat-9) (A) **O 99**
Finite Element Analysis of a Cylinder-to-Plate Intersection (78-PVP-17) (A) **O 103**
Forced Response of Stiffened Plates (77-DET-150) (A) **F 129**
Free Vibration of Thin Rectangular Plates by a Mixed Finite Element (77-DET-143) (A) **F 128**
Thermal Response of Slabs Subjected to Nonsymmetric Convective Heat Transfer (78-DE-8) (A) **S 72**
Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) (A) **Ja 114**
Vibration of Beams and Plates with Edges Elastically Restrained Against Rotation Carrying Elastically Mounted Masses (77-DET-87) (A) **F 122**
Vibration and Noise Reduction of Beams and Plates by Use of Boundary Damping and Stiffness (77-DET-155) (A) **F 129**
Wear Test on Coupler Carrier Wear Plates (77-WA/RT-8) (A) **Mr 84**
Wide-Band Band Random Vibration of Circular Plates (77-DET-97) (A) **F 123**

Platforms
Dynamically Damped Floating (77-Pet-58) (A) **Ja 104**

Platzer, M. F. Aeroelastic Stability Analysis of Supersonic Cascades (78-GT-151) (A) **Ag 115**

Ploeger, D. W. Attenuation of Weak Pressure Waves in a Simple Piping Loop (78-PVP-61) (A) **N 119**

Plug Valves
Quiet Vent Valve Design and Airborne Noise Spectra (77-WA/Fcs-12) (A) **Ap 98**

Plumb, O. A. Natural Convection from a Vertical Isothermal Surface Imbedded in a Saturated Porous Medium (78-HT-55) (A) **O 97**

Plume Strengths
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along Vertical Isothermal Wall (77-WA/HT-30) (A) **Ap 104**

Plumtree, A. Application of Damage Concepts to Predict Creep-Fatigue Failures (78-PVP-26) (A) **O 104**

Plutonium
Alternate Fuel Cycles in HTGR's (77-JPGC-NE-26) (A) **Mr 92**
Must We Forego Plutonium? (C) **D 36**

Pnueli, D. Two Temperature Gradients Model for Friction Failure (77-Lub-28) (A) **Mr 87**

Pneumatic Brakes
A Study in Pneumatic Brake Selection (77-DET-127) (A) **F 126**

Pneumatic Conveying Systems
California Welcomes Conference on Pneumatic Handling (NR) **My 69**

Pneumatic Impact Absorbers
Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) (A) **Ja 108**

Pneumatic Stepping Motor
Characteristics of a Novel Pneumatic Stepping Motor (77-WA/Fcs-7) (A) **Ap 97**

Pneumatic Systems
Design and Dynamic Performance of a Hydromechanical Impact Breaker (77-WA/Fcs-3) (A) **Ap 97**

Pneumatic Tools
Reducing "Engineering Overkill" (BTR) **Ja 65**

Pneumatic Vibration Isolation
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) (A) **Ja 108**

Pneumatically Driven Pumps
Analysis of Pneumatically Driven Double-Acting Reciprocating Pumps (78-DE-19) (A) **O 91**

Pocket Calculator
Scientific Analysis on the Pocket Calculator (CB) **F 135**

Pogson, J. T. Heat Transfer Augmentation Using a Corona Discharge Air Jet (78-ENAs-8) (A) **N 111**

Polak, A. Interacting Turbulent Boundary Layer Over a Wavy Wall (77-WA/HT-28) (A) **Ap 104**

Polani, J. R. Stability Design Criteria for Vessels Subjected to Concurrent External Pressure and Longitudinal Compressive Loads (78-PVP-110) (A) **N 125**

Policymaking
On Consensus and Policymaking (C) **Je 52**

Poling, W. D. Nuclear Power Plant Quality Assurance—Palliative or Panacea? **Jl 30**

Pollutant Emission Levels
Design and Development of a Low Emission Combustor for a Car Gas Turbine (78-GT-155) (A) **Ag 115**

Pollutant Emission Measurement
The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) (A) **Ag 106**

Pollutant Emissions
Evaluation of Two Industrial Boilers with Combustion Modifications for Reduced Pollutant Emissions (77-WA/APC-1) (A) **My 101**

Pollutant Levels
Influences on Exhaust Emissions From Automotive Gas Turbines (78-GT-85) (A) **Ag 106**

Pollution
Air Pollution (CB) **Je 112**
Electroplating System Saves Energy and Cuts Pollution (BTR) **Ag 60**
Pollution Evaluation: The Quantitative Aspects (CB) **Jl 100**
Pollution Solution Questioned (C) **N 56**

Pollution Control
Automotive Pollution Control Catalysts and Devices (CB) **Je 114**
Bigger and Better Scrubbers (ES) **Jl 23**
Electrostatic Filtration (EN) **Ap 75**
New Air Pollution Technology (ES) **My 21**
TVA vs. EPA (ES) **F 27**
World's Trash Can? (BTR) **F 53**

Pollution Cost Reduction
Charged Filters Could Cut Pollution Costs by 80 Percent (EN) **Je 76**

Pollution Data
Environmental Monitoring Data Acquisition Computer System (EMD-ACS) (77-WA/APC-3) (A) **My 102**

Polyester/Cotton Blends
Combing and Opening Room Blends of Cotton and Polyester (77-Tex-5) (A) **F 132**

Polyester/Cotton Yarns
The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) (A) **F 132**

Polyethylene Autoclaves
Thoughts on a Code of Practice for Forged High Pressure Vessels of Monobloc Design (78-PVP-62) (A) **N 119**

Polygonal Cross Sections
Torsion of Bars of Solid Polygonal and Hollowed Polygonal-Circular Cross Sections (77-WA/DE-27) (A) **Mr 96**

Polymer Additives
High Energy Water Jet Cutting Equations for Wood (77-WA/Prod-18) (A) **Je 104**

Polyolefin Films
Microporous Polyolefin Films (BTR) **Ja 64**

Pond Water
Potential Improvement of Solar Pond Efficiency by Downward Convection (77-WA/HT-6) (A) **Ap 102**

Pontoons
Design of Pontoons for Floating Roofs (78-PVP-111) (A) **N 124**

Pool Stagnation
Investigations into the Sodium-Steam Surface Interaction on a Stagnant Pool (77-JPGC-NE-11) (A) **Mr 91**

Poole, H. W. A New Hooked Needle Device for Forming Fiber Beards for Length and Strength Measurement (77-Tex-2) (A) **F 131**

Poon, D. T. Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) (A) **F 124**

Poorman, P. *(recipient)* Sylvia W. Farny Scholarship **N 101**

Popoff, A. Explosion Welding **My 28**

Porous Journal Bearings
On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) (A) **Mr 86**

Porous Media
Buoyancy Induced Convection Flow in Porous Media with Heat Source (78-HT-57) (A) **O 98**
Convective Heat Transfer in Porous Media (78-HT-45) (A) **O 96**
Energy Equations for Convection in Saturated Porous Media (78-HT-54) (A) **O 97**
Natural Convection from a Vertical Isothermal Surface Imbedded in a Saturated Porous Medium (78-HT-55) (A) **O 97**
Three-Dimensional Natural Convection in a Confined Porous Medium Heated Below (78-HT-56) (A) **O 98**

Porous Solids
Analysis of Transient Heat Transfer in Porous Solids with Application Toward Phase Separation Processes (77-WA/HT-13) (A) **Ap 102**

Porous Wall
Turbulence Scales in a Pipe Flow with a Slightly Heated Wall (78-HT-4) (A) **O 92**

Porowski, J. S. Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) (A) **Mr 92**; Theory of Free Coiled Pressure Vessels (78-PVP-73) (A) **N 120**

Portable Cooling Systems
Dry-Ice, Liquid-Pulse-Pump, Portable Cooling System (78-ENAs-41) (A) **D 87**

Portable Equipment
Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/Sol-1) (A) **My 97**

Porter, R. W. Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) (A) **Ap 94**

Postbuckling Equilibria
Stable Postbuckling Equilibria of Axially Compressed, Elastic Circular Cylindrical Shells: A Finite-Element Analysis and Comparison With Experiments (77-WA/APM-9) (A) **Jl 97**

Postlethwaite, A. W. MHD Heat Transfer Problems—An Overview **Mr 32**

Potable Water Recovery
A Thermoelectric Integrated Membrane Evaporation System (78-ENAs-19) (A) **N 112**

Potonides, H. C. Development of an Inlet for a Tilt Nacelle Subsonic V/STOL Aircraft (78-GT-121) (A) **Ag 111**

Powdered Ion Exchange Resins
Control of Nuclear Fuel Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**

Power
Convert Laser Power to Electrical Power (BTR) **Je 59**
East-West Balance of Power (C) **Mr 47**
Electrical Generator Uses Ocean Waves (BTR) **Je 53**
Jebba Hydroelectric Project (IF) **My 65**
Power's Effect: A Case Study (ES) **F 26**
Rechargeable, High-Energy Lithium Battery (BTR) **Je 58**
UHV Effects on Ecosystem (BTR) **N 66**
Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) (A) **Ja 106**
The Utilization of High-Temperature Gas Turbines in Integrated Coal-Derived Fuel Combined Cycles (77-WA/Ener-12) (A) **My 95**

Power Blackouts
Engineers See Blackouts Likely in 2-10 Yr (NB) **S 59**

Power Cables
New Power Cable Technique (NB) **Ap 71**

Power Consumption Reduction
NASA Engineering Invents Electricity Saver (BTR) **D 38**

Power Cycles
Effects of Steam Injection on the Performance of Gas Turbine Power Cycles (78-GT-11) (A) **Jl 87**

Power Design Concept
A High-Effectiveness Regenerator Design Concept (78-GT-78) (A) **Ag 105**

Power Engineering
The Atomics International Open Loop and Closed Loop Aqueous Carbonate Processes—A Current Assessment (78-JPGC-Pwr-15) (A) **D 83**
Avoiding Corrosion of Steam Turbine Components During Erection and Layup (78-JPGC-Pwr-5) (A) **D 83**
Chromizing and Turbine Solid Particle Erosion (78-JPGC-Pwr-7) (A) **D 83**
Condensate Reheating and Separate Reheating Hotwells for Central Station Main Condensers (78-JPGC-Pwr-14) (A) **D 83**
Controlled Reluctance Eddy Current Inspection of Steam Turbine Blades (78-JPGC-Pwr-6) (A) **D 83**

The Effects of Water Chemistry on the Reliability of Modern Large Steam Turbines (78-JPGC-Pwr-9) (A) **D 83**
Emission Control for SO_2: An Update (78-JPGC-Pwr-11) (A) **D 82**
History and Development of Condensers at the Geysers Geothermal Power Plant (78-JPGC-Pwr-18) (A) **D 84**
The Impact on Power Plant Design of Sulfur Distribution in coal (78-JPGC-Pwr-13) (A) **D 83**
A New Approach for Increasing the Thermal Efficiency of Steam Power Cycles (78-JPGC-Pwr-2) (A) **D 82**
Operating Experience with Three 20-MW Prototype Flue Gas Desulfurization Processes (78-JPGC-Pwr-12) (A) **D 83**
Power Plant Equipment Reliability (78-JPGC-Pwr-8) (A) **D 83**
Power System Economics: On Evaluation of Availability (78-JPGC-Pwr-3) (A) **D 82**
PWR Normal Shutdown Transient Response Using Runge-Kutta's Technique (78-JPGC-Pwr-1) (A) **D 82**
Selecting an Optimum Rating for Feedpump Turbine Drivers (78-JPGC-Pwr-4) (A) **D 82**
Solar One—A 10-MW Solar Thermal Central Receiver Pilot Plant Project (78-JPGC-Pwr-10) (A) **D 82**
Steam Purity in German Power Plants: Standards, Operational Data and Effects on Turbine Components (78-JPGC-Pwr-20) (A) **D 84**
Steam Surface Condenser Operating and Design Considerations (78-JPGC-Pwr-19) (A) **D 84**
Steam Turbines for Congeneration Power Plants (78-JPGC-Pwr-16) (A) **D 83**
The Surface Condenser as an Environmental Barrier (78-JPGC-Pwr-17) (A) **D 83**

Power Engineers
Power Engineers Assess Energy Options (ES) **F 27**

Power-Generating Systems
Magnetohydrodynamic Energy for Electric Power Generation (CB) **Ji 101**

Power Generation
Analytical Investigation of Thermal Barrier Coatings for Advanced Power Generation Combustion Turbines (77-WA/Ener-13) (A) **My 95**
Design and Calculated Performance and Cost of the ECAS Phase II Open Cycle MHD Power Generation System (77-WA/Ener-5) (A) **My 94**
Grid Connected Electrical-Thermal (Cogeneration) Energy System for University of California, Davis, California (78-GT-134) (A) **Ag 112**
House Power from Solar Cells (BTR) **O 56**
Joint Power Generation Conference (NR) **Ji 61**
Methane from Manure (ES) **Ji 22**
Photovoltaic Power Generation (CB) **D 97**
Power Generation Research (IF) **N 72**
Rosy Predictions for Heat Exchangers (ES) **N 20**
Wind Power (C) **Ji 41**

Power Generation Development
Efficient Cleaning of Hot Gases (ES) **Ji 22**

Power Measurement
A High Temperature Turbine Research Module (77-GT-73) (A) **Ag 105**

Power Plant Activities
Nuclear Gas Turbine Power Plant Activities in the United States (77-JPGC-GT-5) (A) **Mr 93**

Power Plant Intake Screenwell
Sediment Control for a Power Plant Intake Screenwell (77-JPGC-Pwr-15) (A) **Mr 89**

Power Plants
Ambient Ground-Level Sulfur Dioxide Concentrations in the Vicinity of a Multiple Stack Power Plant During and After Operation (77-WA/APC-4) (A) **My 102**
The Atomic Power Insurance Act Violates The Constitution of The United States (77-WA/TS-5) (A) **My 98**
Atomic Power Plant Insurance Act Violates the Constitution **My 80**
Bearing Compartment Seal Systems for Turbomachinery in Direct-Cycle HTGR Power Plants (78-GT-38) (A) **Ji 91**
Bigger and Better Scrubbers (ES) **Ji 23**
The Breeder—Now or Never (NR) **Je 66**
Coal-Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**
Cogeneration Power Plants Serve District Heating Systems **Ji 24**
Combined Cycles for Operation on Coal Derived Fuels with High-Temperature Combustion Turbines (77-WA/Ener-14) (A) **My 95**
Compact Metallic and Ceramic Recuperators for Gas Turbines (78-GT-62) (A) **Ji 95**
Conceptual Design of a Coal-Fueled, Fluid Bed Combined Cycly Power Plant (77-WA/Ener-11) (A) **My 95**
Design of a High Efficiency Combined Cycle Electric Power Plant for Low Btu Coal-Gas (78-GT-125) (A) **Ag 111**
Design of a Pressurized Fluid Bed Coal Fired Combined CYCLE Electric Power Generation Plant (78-GT-135) (A) **Ag 113**
Dynamic Response of a High-Pressure Steam Pipe in a Fossil Fuel Power Plant (78-PVP-75) (A) **N 120**
An Economic Evaluation of Washed Coal for the Four Corners Generating (77-WA/CD-2) (A) **My 101**
The Effectiveness of Flue Gas Desulfurization Systems in Reducing Power Plant Ambient Air Quality Impacts (77-JPGC-Pwr-6) (A) **Mr 88**
An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Ji 94**
"Elegant Frugality" via Soft Technologies (BTR) **Ap 50**
The Fuel Cell is Alive and Well (ES) **Ag 22**
Fuel Cell Power Plants Studied (BTR) **Ag 60**
Gas Turbine Commissioning Procedure (78-GT-54) (A) **Ji 94**
A Hard Look at Liquid Coal (ES) **Ag 23**
Hot Corrosion in Gas Turbines (77-WA/Fu-3) (A) **My 92**
Hybrid Fossil-Geothermal Power Plants (77-WA/Ener-2) (A) **My 93**
Hybrid Geothermal—Fossil Power Plants **D 28**
Integrated Power Plant (ES) **Je 19**
Intermediate Heat Exchanger Development for the Clinch River Breeder Reactor Plant (77-WA/NE-10) (A) **Je 101**
Moving Ahead on Ocean Thermal Energy (ES) **Je 19**
Navy Marine Power Plant (BTR) **Ja 56**
Nuclear Power Comes Through! (ES) **S 21**
Optimization Analysis of a CCGT Nuclear Power Plant with Application to the HHT 3000 MWth Commercial Plant (HHT-Project) (78-GT-16) (A) **Ji 88**
An Optimization Strategy for Control of SO_x from Coal-Fired Power Plants (77-JPGC-Pwr-16) (A) **Mr 89**
Performance and Cost Evaluation for a Thermionic Topping Power Plant (77-WA/Ener-7) (A) **My 94**
Potted at the Power Plant (BTR) **Ap 55**
Power Plant Productivity Trends and Improvement Possibilities (77-JPGC-Pwr-11) (A) **Mr 89**
Program to Establish LMFBR Commercialization (77-JPGC-NE-23) (A) **Mr 92**
Rapid Positive Load Changes by Gas Injection in Closed Gas Turbine Cycles (78-GT-8) (A) **Ji 87**
Reliability of Operating Power Plants—A Utility Viewpoint (77-JPGC-Pwr-10) (A) **Mr 89**
Seismic Design Margins for CANDU®PHW Nuclear Power Plant (78-PVP-38) (A) **N 116**
Shaft Couplings and the Cinderella Syndrome (77-DET-132) (A) **F 127**
Simulation of Helicopter Powerplant Performance (78-GT-51) (A) **Ji 93**
Solar Ponds (BTR) **Ja 52**
Standardized Nuclear Systems (ES) **N 20**
Startup and Initial Operating Experience of Braintree's 85-Megawatt Combined-Cycle Unit (77-JPGC-GT-1) (A) **Mr 92**
Thermionic Energy Conversion Topping System (77-WA/Ener-6) (A) **My 94**
Too Little Too Late (C) **N 56**
Of Utility Rates and Free Lunches (C) **Ap 45**

Power Production
The Mediterranean - Dead Sea Project (BTR) **F 58**
Power Production in Space (BTR) **N 65**

Power Reactors
Promising Fusion Device (ES) **My 21**
Use of Thorium in Power Reactors (77-JPGC-NE-24) (A) **Mr 92**

Power Shortages
Power Shortages Ahead (ES) **Ap 21**

Power Stations
Availability Engineering for Coal-Fired Power Projects (78-PVP-12) (A) **O 102**
A 400-MW Modular Reactor (ES) **My 20**
New Power Station (IF) **Ag 68**

Power System Economics
Power System Economics: On Evaluation of Availability (78-JPGC-Pwr-3) (A) **D 82**
Power System Economics: On Selection of Engineering Alternatives (77-JPGC-Pwr-7) (A) **Mr 88**

Power Systems
Possibilities for Solar-Thermal (ES) **Ag 23**
Second-Generation Integrated Coal Gasification/Combined-Cycle Power System (78-GT-14) (A) **Ji 88**
A Stand on Satellites (C) **My 50**
Technical and Economic Objectives for the Development of Advanced Combined Cycles for Use with Coal-Derived Fuels (78-GT-101) (A) **Ag 108**

Power Transfer Elements
How to Design and Utilize Flexible Shafts in Products (78-DE-22) (A) **S 73**

Power Transmissions
Performance of Composite Flat Belt Drive Materials Under Simulated Power Transmission (77-DET-167) (A) **F 136**
The Trailing Shoe Type Centrifugal Clutch—Design Principles and Characteristics (77-DET-126) (A) **F 126**
Using Bevel Gear Differentials **My 36**
The Wind, a Low-Grade Energy Source (77-WA/Ener-4) (A) **My 93**

Power Turbine
Design and Development of a Power Turbine for the Spey Gas Generator (78-GT-183) (A) **S 75**

Power Wax
Synthesis of the Plane Four-Bar Mechanism for Torque Generation, and Application to a Case Study for the Design of a New Balancing Mechanism for Rotary Top Brush in Power Wax Car Washing Machines (78-DET-71) (A) **D 94**

Powered Medical Manipulator
A Powered Medical Manipulator for the High Spinal Cord Injured Person (77-WA/Bio-13) (A) **Ap 99**

Powerplant Design
Commercial Powerplant Design Development for the Coal Fired Combined Cycle (77-JPGC-GT-6) (A) **Mr 93**

Powerplant Integration
Powerplant Integration—the Application of Current Experience to Future Developments (78-GT-113) (A) **Ag 109**

Powers, W. F. Locomotive Matters (C) **My 50**

Pradt, L. A. Energy and Materials from Garbage (C) **Mr 48**

Prandtl Number
Effect of Stabilizing Thermal Gradients on Natural Convection in Rectangular Enclosures (78-HT-42) (A) **O 97**
Investigation of Heat Transfer Between an Electric Arc and a Turbulent Gas Flow in a Channel (78-HT-8) (A) **O 92**

Pratt, C. M. Recent Experience on Centrifugal Compressors for Small Gas Turbines (78-GT-193) (A) **S 76**

Precipitation Specifications
Better Precipitator Specs (ES) **Mr 18**

Precipitators
Cleaning Western Coal (ES) **Mr 19**
A Combined System of Fuel Washing Involving Both Centrifuges and Electrostatic Separators—A Hybrid (78-GT-130) (A) **Ag 112**
Factors Detrimental to Electrostatic Precipitator Performance (77-WA/APC-7) (A) **My 101**
Forget These! Remember Those! (ES) **Mr 18**

Precoat Materials
An Evaluation of New Filter/Demineralizer Precoat Materials (78-JPGC-NE-16) (A) **D 86**

Precracked Charpy Specimens
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**

Prem, L. L. Test Results of a New Distillate Fuels Purification System (78-GT-203) (A) **S 77**

Prenger, F. C., Jr. Heat Transfer in Packed Beds at Low Reynolds Number (78-HT-46) (A) **O 97**

Prentice, R. M. Propulsion System Design for the Multi-Mission Patrol Ship Mart 1/1A (78-GT-182) (A) **S 75**

Presidential Impact
The Impact of the Presidency on Technology: The Case of Nuclear Energy **Je 20**

Press Control
Electronic Safety Press Control (IF) **Ap 65**

Pressure
Gas Pressure Bonding of Stratapax (77-Pet-72) (A) **Ja 105**
A Look at Reactor Cooling Water (ES) **Ja 19**
Vibrations in Very High Pressure Centrifugal Compressors (77-DET-15) (A) **Ja 108**

Pressure Differences
Vaneless Diffuser Flow with Extremely Distorted Inlet Profile (78-GT-47) (A) **Ji 92**

Pressure Distortion
Propagation of Inlet Flow Distortions Through an Axial Compressor Stage (78-GT-34) (A) **Ji 91**

Pressure Distribution
Application of Nonseries Airfoil Design Technology to Highly Loaded Turbine Exit Guide Vanes (78-GT-108) (A) **Ag 109**
Direct Blade Force Measurements in Transonic Cascade Flows (78-GT-45) (A) **JL 93**
Effects of Strain-Hardening on Rock/Bit-Tooth Interaction (77-Pet-70) (A) **Ja 105**
Interface Pressure Distribution in a Bolt-Flange Assembly (77-WA/DE-11) (A) **Mr 94**
A Network Approach to Brake Pipe Leakage (77-WA/Fics-10) (A) **Ap 97**
Profile Loss Characteristics and Heat Transfer of Full Coverage Film-Cooled Blading (78-GT-98) (A) **Ag 108**
Pump-Induced Acoustic Pressure Distribution in an Annular Cavity Bounded by Rigid Walls (78-PVP-69) (A) **N 120**
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) (A) **Ag 109**
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) (A) **Ag 115**
Pressure Distribution Measurements
A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) (A) **Ap 95**
Pressure Drop
Analytical Approach for the Design of Fine-Metering Valves (77-WA/FE-24) (A) **Ap 96**
Critical Review of Correlations for Predicting Two-Phase Flow Pressure Drop Across Tube Banks (77-WA/HT-23) (A) **Ap 104**
Developments in the Design of Shell-and-Tube Condensers (77-WA/HT-24) (A) **Ap 104**
Dynamic Characteristics of Double-Pipe Heat Exchangers with Double Phase Change (77-WA/HT-26) (A) **Ap 104**
Evaporative Heat Transfer and Pressure Drop Performance of Internally-Finned Tubes with Refrigerant 22 (77-WA/HT-25) (A) **Ap 104**
Two-Phase Flow on the Shell-Side of a Segmentally Baffled Shell-and-Tube Heat Exchanger (77-WA/HT-22) (A) **Ap 103**
Pressure Fields
Analysis of the Flow Field in a Radial Compressor (78-GT-7) (A) **Ji 87**
Pressure Formula
The Theory of Static Loads in Bins (77-WA/APM-1) (A) **Je 111**
Pressure Gradients
Boundary Layer Calculation for Analysis and Design (77-WA-FE-25) (A) **Ap 96**
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) (A) **Ag 109**
Film Cooling Effectiveness for Injection From Multirow Holes (78-GT-32) (A) **Ji 90**
Steady Pressure Gradient Assisted Plane Couette Flow with Temperature Dependent Viscosity (78-HT-28) (A) **O 95**
Pressure Head Build-Up
Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) (A) **Mr 86**
Pressure Losses
Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) (A) **Ja 106**
Pressure Measurement
Experimental Investigation of Unsteady Phenomena in Vaneless Radial Diffusers (78-GT-23) (A) **Ji 89**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) (A) **Mr 86**
Radial Vaneless Diffusers: A Re-Examination of the Theories of Dean and Senoo and of Johnston and Dean (78-GT-186) (A) **S 75**
Pressure Measuring Instrumentation
Pressure Instrumentation for Gas Turbine Engines—A Review of Measurement Technology (78-GT-148) (A) **Ag 114**
Pressure Pulses
Response of Water-Filled Thin-Walled Pipes to Pressure Pulses: Experiments and Analysis (78-PVP-53) (A) **N 117**
Pressure Ratio
The Effects of Ambient Conditions on Gas Turbine Emissions-Generalized Correction Factors (78-GT-87) (A) **Ag 106**
A High Temperature Turbine Research Module (77-GT-73) (A) **Ag 105**
Jet Curtain Flameholder for Aircraft Afterburners (78-GT-95) (A) **Ag 107**
Pressure Recovery
Development of an Inlet for a Tilt Nacelle Subsonic V/STOL Aircraft (78-GT-121) (A) **Ag 111**
Pressure Response
In Vivo Pressure Activity in the Canine Vas Deferens (77-WA/Bio-7) (A) **Ap 98**
Pressure Signals
A Rotating Stall Control System for Turbojet Engines (78-GT-115) (A) **Ag 109**
Pressure Transient Analysis
Pressure Transient Analysis in Piping Systems Including the Effects of Plastic Deformation and Cavitation (78-PVP-56) (A) **N 118**
Pressure Tubes
Computer Assisted Analysis of Cracking in Zr-2.5 Wt% Nb Pressure Tubes (78-PVP-42) (A) **N 117**
Pressure Vessel Steels
Radiation Effects in Boiling Water Reactor Pressure Vessel Steels (78-Mat-11) (A) **O 99**
Reference Fracture Toughness Curves for Irradiated Pressure Vessel Steels (78-Mat-20) (A) **O 101**
Pressure Vessels
Acoustic Emission Monitoring During Rupture Test of Pressure Vessel and Laboratory Fracture Test (78-PVP-18) (A) **O 104**
Analysis of Crack Arrest in Reactor Pressure Vessels (78-Mat-16) (A) **O 100**
Effects of Irradiation on A508 Class 2 and 3 Forging Grade Steels (78-Mat-21) (A) **O 101**
Feasibility of Local Stress Relieving Close to Main Shell of a Large Vessel (78-NE-2) (A) **N 114**
Half-Bead Weld Repairs for In-Service Applications (78-PVP-10) (A) **O 102**
OBE Design Effects on Nuclear Power Plant Pressure Vessel (78-PVP-13) (A) **O 103**
Pressure Vessel Handbook (CB) **F 136**
The Rule of Codes, Standards and Regulations in Nuclear Pressure Vessel Surveillance Programs (78-Mat-24) (A) **O 101**
Sealing Forces for Leak-Tight Operation of a Self-Energized Pressure Vessel Closure (78-PVP-16) (A) **O 103**
Pressure Vessels and Piping
Acoustic Emission Monitoring During Rupture Test of Pressure Vessel and Laboratory Fracture Test (78-PVP-18) (A) **O 104**
Advances in Ultrasonic for Inservice Inspection (78-PVP-39) (A) **N 117**
Analysis of a Canister Closure Design by Damage Tolerance Concepts (78-PVP-108) (A) **N 125**
Analysis of Edge-Beam Reinforced Layered Cylindrical Pressure Vessels (78-PVP-103) (A) **N 124**
Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) (A) **O 102**
An Analysis of the Propagation of a Brittle Circumferential Crack in a Pipe Subjected to Axial Stresses (78-PVP-101) (A) **N 124**
Analytical Experimental Correlation of a Nonlinear System Subjected to a Dynamic Load (78-PVP-37) (A) **O 105**
Analytical and Experimental Stress Analysis of a Cylender-to-Cylinder Structure (77-PVP-11) (A) **Ja 109**
An Analytical Method for Fixed Tubesheet Heat Exchangers and Its Experimental Verification (78-PVP-77) (A) **N 120**
Application of Damage Concepts to Predict Creep-Fatigue Failures (78-PVP-26) (A) **O 104**
Application of LIFE Transient Codes to Experiment and Core Design (78-PVP-51) (A) **N 116**
An Application of the Substructuring Method to Heat Transfer (77-PVP-32) (A) **Ja 108**
ASME/CSME and Metal Properties Council Cosponsor PVP Conference (NR) **My 69**
Attenuation of Weak Pressure Waves in a Simple Piping Loop (78-PVP-61) (A) **N 118**
Availability Engineering for Coal-Fired Power Projects (78-PVP-12) (A) **O 102**
Buckling of Rectangular Cross-Ply Laminated Plates with Nonlinear Stress-Strain Behavior (78-PVP-64) (A) **N 119**
Closed-End Cylindrical Shell Under Line Load Along a Generator (78-PVP-85) (A) **N 122**
Comparison of ICEPEL Predictions with Single Elbow Flexible Piping System Experiment (78-PVP-55) (A) **N 118**
A Computational Model for Fracture of Pressure Vessel Steel Derived from Experimental Data (78-PVP-92) (A) **N 122**
Computation of Residual Stresses Due to Multipass Welds in Piping Systems (78-PVP-104) (A) **N 124**
Computer Assisted Analysis of Cracking in Zr-25 Wt% Nb Pressure Tubes (78-PVP-42) (A) **N 117**
Computer Code for Predicting the Dynamic Response of High Energy Piping, Pressure Vessels, and Shell Structures Subjected to Transient Loads and Impacts (78-PVP-33) (A) **N 116**
Consideration of Local Piping Stiffness in Dynamic Analysis by Piping Systems with Nonlinear Restraints (78-PVP-109) (A) **N 125**
A Constant Strain Element Model Stress Accuracy Prediction Method—ESP (78-PVP-65) (A) **N 119**
Core Mechanics and Configuration Behavior of Advanced LMFBR Core Restraint Concepts (78-PVP-49) (A) **N 118**
A Coupled Eulerian-Lagrangian Method for Analyzing Nonlinear Fluid-Structure Interaction Transient in Reactors (78-PVP-62) (A) **N 119**
Critical Speeds and Response of a Large Vertical Pump (78-PVP-34) (A) **O 105**
Cross Flow Induced Vibrations in a Tube Bank (78-PVP-25) (A) **O 014**
Decoupling Criteria for Seismic Analysis of Nuclear Power Plant Systems (78-PVP-27) (A) **O 104**
Decoupling of Undamped Vibration Systems (77-PVP-7) (A) **Ja 107**
Design and Analysis of a Compact Array of (Class 1) Nuclear Piping for Large Anchor Movements and Seismic Supports (78-PVP-29) (A) **O 104**
Design, Manufacture and Safety Aspects of Forged Vessels for High-Pressure Services (78-PVP-72) (A) **N 120**
Design and Operation of a Large-Diameter (1.67-m) Steamline (78-PVP-86) (A) **N 122**
Design of Pontoons for Floating Roofs (78-PVP-111) (A) **N 124**
Determination of Stress Intensification Factors for the Code Qualification of Integrally Reinforced Branch Connections (78-PVP-99) (A) **N 123**
Development of Structural Design Criteria for Highly Irradiated Core Components (78-PVP-78) (A) **N 121**
Dugdale Plastic Zone Sizes for Edge Cracks (78-PVP-98) (A) **N 123**
Dynamic Finite Element Analysis of Cracked Bodies (78-PVP-94) (A) **N 123**
Dynamic Plastic Response of an Immersed Pipe (77-PVP-8) (A) **Ja 107**
Dynamic Response of a Circular Cylinder Subjected to Liquid Cross Flow (78-PVP-15) (A) **O 103**
Dynamic Response of a High-Pressure Steam Pipe in a Fossil Fuel Power Plant (78-PVP-75) (A) **N 120**
The Effect of Cycle Shape on Creep-Fatigue Interaction in Austenitic Stainless Steels (78-PVP-89) (A) **N 122**
The Effect of Primary Head Shape on Tubesheet Thickness (78-PVP-30) (A) **O 104**
The Effect of Thickness Variations on the Behavior of Smooth Curved Pipes Under External Bending (78-PVP-93) (A) **N 123**
Effect of Transverse Shearing Deformations on the Coupled Twist-Bending of Curved Beams (78-PVP-102) (A) **N 124**
Elastic and Elastic-Plastic Buckling of Internally-Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) (A) **N 117**
The Elastic-Plastic Behavior of a Tube During Expansion (78-PVP-112) (A) **N 125**
Embedded Elliptical Crack at a Corner (78-PVP-5) (A) **O 102**
Evaluation of the Functional Capability of ASME Section III Class 1, 2 and 3 Piping Components (78-PVP-83) (A) **N 122**
Evaluation of Scale-Model Methods for Operability Qualification of Seismic Category I Pumps and Valves (77-PVP-58) (A) **Ja 108**
Experimental Studies of Tube Fretting in Steam Generators and Heat Exchangers (78-PVP-22) (A) **O 103**
Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) (A) **O 98**
Finite Element Analysis of Bourdon Tubes (79-PVP-67) (A) **N 119**
Finite Element Analysis of a Cylinder-to-Plate Intersection (78-PVP-17) (A) **O 103**
Finite Element Analysis of a Large Ridge Inert Atmosphere Creep Test Specimen (78-PVP-7) (A) **O 102**
Flexibility Analysis of Curved Pipe (78-PVP-82) (A) **N 121**

Fluid-Structure Interaction Calculations for Cylinders Impacting a Water Pool (78-PVP-59) (A) **N 119**
Fracture Mechanics Analysis of JAERI Model Pressure Vessel Test (78-PVP-91) (A) **N 122**
Frequency Effects in the Elevated Temperature Crack Growth Behavior of Austenitic Stainless Steel—A Design Approach (78-PVP-9) (A) **N 123**
Fuel Pin Bundle and Hexagonal Duct Mechanical Interaction (78-PVP-48) (A) **N 117**
Fuel Porosity and Crack Effects on Transient Overpower Analysis (78-PVP-52) (A) **N 118**
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) (A) **O 101**
Generalized Second-Moment Reliability Analysis (78-PVP-105) (A) **N 124**
Half-Bead Weld Repairs for In-Service Applications (78-PVP-10) (A) **O 102**
High Pressure, Quick Acting Closure for Large Diameter, Full Opening, Nuclear and Petro-Chem Pressure Vessels (78-PVP-74) (A) **N 120**
An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) (A) **O 101**
A Linear Uniaxial Damage Accumulation Law for Creep-Fatigue Interaction (78-PVP-63) (A) **N 119**
Locating Pipe Supports for Combined Thermal and Seismic Loading (77-PVP-63) (A) **Ja 108**
A Long-Term System Dynamic Response to a Sodium-Water Reaction in a Typical LMFBR Steam Generator Loop (78-PVP-66) (A) **N 119**
Low-Cycle Cumulative Damage with Two-Strain Repeated Blocks on a Stainless Steel at High Temperature (78-PVP-88) (A) **N 122**
Mass Coupling Effects in the Dynamic Analysis of Nuclear Power Plant Systems (78-PVP-28) (A) **O 104**
Mechanical and Thermal Stresses in the Volute of a Pump Casing (78-PVP-45) (A) **N 117**
Metallurgical Causes of Difficulties with Ultrasonic Inspection of Austenitic Welds (78-PVP-8) (A) **O 102**
A Method for Reliability Analysis of Concrete Reactor Vessels (78-PVP-100) (A) **N 123**
Modal Superposition Method for Computationally Economical Nonlinear Structural Analysis (78-PVP-70) (A) **N 120**
Model Summing Rules for Seismic Qualification (78-PVP-32) (A) **O 105**
Morrison and Parry Seals for Water Pressures up to 345 MPa (78-PVP-13) (A) **O 103**
Nonlinear Transient and Spectrum Response Seismic Analysis of a Reactor Coolant Pump (78-PVP-36) (A) **O 105**
A Numerical Method Based on the Method of Characteristics for Two-Dimensional Fluid Transients (78-PVP-57) (A) **N 118**
OBE Design Effects on Nuclear Power Plant Pressure Vessel (78-PVP-14) (A) **O 103**
Optimum Design for Class 1 Nuclear Piping (78-PVP-81) (A) **N 121**
Overview of Fuel Element Design (78-PVP-50) (A) **N 118**
PIPESD/HEAT: A Transient Thermal Analyzer Evaluating Class 1 Piping Components According to Section III of the ASME Code (78-PVP-80) (A) **N 121**
Pre-service and In-service Inspection-Research and Development in Support of the Canadian Nuclear Power Program (78-PVP-23) (A) **O 104**
Pressure Transient Analysis in Piping Systems Including the Effects of Plastic Deformation and Cavitation (78-PVP-56) (A) **N 118**
Probabilistic Stress Evaluation of Piping Systems Assuming Single Snubber Failures (78-PVP-107) (A) **N 124**
A Procedure for Estimating the Stress Intensity Factor of a Flattened Surface Crack at a Nozzle Corner (78-PVP-95) (A) **N 123**
Pump-Induced Acoustic Pressure Distribution in an Annular Cavity Bounded by Rigid Walls (78-PVP-69) (A) **N 120**
Quasi-Eulerian Finite Element Formulation for Fluid-Structure Interaction (78-PVP-60) (A) **N 119**
Rational and Economical Multicomponent Seismic Design of Piping Systems (78-PVP-84) (A) **N 122**
Reduction of Allowable Seismic or Weight Piping Span Length Due to Presence of a Concentrated Mass (78-PVP-19) (A) **O 104**
Residual Ductility and Residual Stresses in Formed Heads (77-PVP-13) (A) **Ja 107**
Response Spectrum Method with Residual Terms (78-PVP-79) (A) **N 121**
Response of Water-Filled Thin-Walled Pipes to Pressure Pulses: Experiments and Analysis (78-PVP-53) (A) **N 177**
Safety Evaluation of Reactor Vessel Nozzle Cracks (78-PVP-90) (A) **N 122**
Safety Index of Nuclear Concrete Containment Structures (78-PVP-106) (A) **N 124**
Safety Margin of Containment of Structures Under Impulsive Loading (78-PVP-68) (A) **N 120**
Sealing Forces for Leak-Tight Operation of a Self-Energized Pressure Vessel Closure (78-PVP-16) (A) **O 103**
Seismic Analysis of the Main Steam System for 600-MWe CANDU Stations (78-PVP-87) (A) **N 121**
Seismic Analysis of Piping Systems on Rocking Foundation Mat (78-PVP-40) (A) **N 117**
Seismic Design of Gyroscopic Systems (78-PVP-44) (A) **N 117**
Seismic Design Margins for CANDU-PHW Nuclear Power Plants (78-PVP-38) (A) **N 116**
Seismic Design Study on Cantilever Cylindrical Shells (77-PVP-14) (A) **Ja 107**
Seismic Qualification Testing for Shutoff Mechanism for CANDU Reactor (78-PVP-41) (A) **N 117**
Significance of Delta Ferrite Content to Fatigue Crack Growth Resistance of Austenitic Stainless Steel Weld Deposits (78-PVP-9) (A) **O 102**
A Simplified Method for Calculating the Natural Frequency of Valve Superstructures (78-PVP-4) (A) **O 102**
Simplified Seismic Analysis Method for Small Pipes (78-PVP-43) (A) **N 117**
Stability Design Criterion for Vessels Subjected to Concurrent External Pressure and Longitudinal Compressive Loads (78-PVP-112) (A) **N 125**
Strength of 304L Stainless Steel and Inconel Alloy at Temperatures Above 1000°C (78-PVP-31) (A) **O 104**
Stress Analysis for the Design of Liquid Metal Piping in the Fast Flux Test Facility (78-PVP-21) (A) **O 103**
Stress Intensity Factor Calculations for Circular Cracks at the Intersections of Pressurized Cylindrical Shells (78-PVP-24) (A) **O 104**
Structural Design for a 10-GWh SMES Vacuum Vessel (78-PVP-46) (A) **N 117**
Study on the Resistivity of Various Types of Steels Against Propagating Shear Fracture by Modified West Jefferson Type Burst Test (78-PVP-71) (A) **N 120**
Theory of Free Coiled Pressure Vessels (78-PVP-73) (A) **N 120**
Thermal Transient Stress Analysis of Cylinder-to-Cylinder Structures by the Finite Plate Method (78-PVP-77) (A) **N 120**
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) (A) **O 101**
Thoughts on a Code of Practice for Forged High Pressure Vessels of Monobloc Design (78-PVP-62) (A) **N 119**
A Three-Dimensional Finite Element Analysis of the Double Torsion Test (78-PVP-96) (A) **N 123**
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) (A) **O 102**
Transient Response of Thin, Thick, or Sandwich Shells and Pressure Vessels Subjected to Transient Loads (78-PVP-35) (A) **N 116**
Ultrasonic Data Acquisition, Analysis, and Display by Minicomputer Aided Techniques (77-PVP-45) (A) **Ja 108**
Uncertainties in Fast Breeder Reactor Fuel Pin Cladding Stress and Strain Calculations (78-PVP-54) (A) **N 118**
Vibro-Impact Responses of a Tube with Tube-Baffle Interaction (78-PVP-20) (A) **O 103**

Pressure Viscosity
Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) (A) **F 132**

Pressure Waves
Attenuation of Weak Pressure Waves in a Simple Piping Loop (78-PVP-61) (A) **N 119**

Pressurization Control
Acid Digestion and Pressurization Control in Combustible Radwaste Treatment (78-NE-17) (A) **N 115**

Pressurized Combustion
A New Concept for the Development of Coal Burning Gas Turbines (78-GT-40) (A) **Ji 91**

Pressurized Cylindrical Shells
Stress Intensity Factor Calculations for Circular Cracks at the Intersections of Pressurized Cylindrical Shells (78-PVP-24) (A) **O 104**

Pressurized Fluid Bed
Design of a Pressurized Fluid Bed Coal Fired Combined Cycle Electric Power Generation Plant (78-GT-135) (A) **Ag 113**

Pressurized Line Pipe
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) (A) **O 101**

Pressurized Module
Active Thermal Control Subsystem Development (78-ENAs-6) (A) **N 110**

Pressurized Water Reactors
Dynamic Analysis of a Pressurized Water Reactor Coolant System Subjected to Postulated Loss-of-Coolant Accident Transient Loads (77-WA/DE-23) (A) **Mr 96**
Non-Linear Lateral Mechanical Response of Pressurized Water Reactor Fuel Assemblies (77-WA/DE-18) (A) **Mr 95**
Thermal-Hydraulic Performance of a Consolidated Nuclear Steam Generator (CNSG) Module (77-JPGC-NE-2) (A) **Mr 89**
Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**

Preston, D. Improved LNG Semi Trailer Design (77-Pet-57) (A) **Ja 104**

Preston Tubes Calibration
The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (A) **Ap 93**

Prestressed Concrete Beam Design
Simplex Solution of Magnel's Method of Prestressed Concrete Beam Design (77-DET-109) (A) **F 125**

Preventive Maintenance
Models of Preventive Maintenance (CB) **O 107**

Price-Anderson Act
Price-Anderson Atomic Plant Insurance Act: What It Is, and What It Is Not **D 66**

Price, J. L. Time-Phased Development Methodology—The Key For Reliable Engines in Future Military Aircraft Weapons Systems (78-GT-167) (A) **Ag 116**

Priebe, L. A. Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation (77-WA/HT-45) (A) **My 100**

Primary Head Shape
The Effect of Primary Head Shape on Tubesheet Thickness (78-PVP-30) (A) **O 104**

Printed Wiring Boards
A Design Procedure for Printing Wiring Boards (77-DET-110) (A) **F 125**

Probe Analysis
Experimental Evaluation and Analysis of Thermistor Probes for Recording Clinical In Vivo Temperature (77-WA/HT-41) (A) **My 100**

Process Control
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/Prod-19) (A) **Je 105**

Process Control Computer Systems
A Comparison of Characteristics of Large Process Control Computer Systems (77-WA/Aut-10) (A) **Je 103**

Process Control Equipment
Process Control Equipment Will Double (NB) **Ag 74**

Process Control Market
European Process Control Market (IF) **Ag 67**

Process Industries
New Developments in Instrumentation and Control (77-WA/PID-1) (A) **My 101**

Process Industry Operations
Managerial Planning with Linear Programming in Process Industry Operations (CB) **D 96**

Process Model Parameters
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) (A) **Je 103**

Process Steam Industries
A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) (A) **My 95**

Product Assurance
Human Performance Reliability—Its Measurement and Impact on System Reliability (78-DE-17) (A) **S 74**

Product Design
The Influence of Market Research on Product Design and Materials Selection (78-DE-3) (A) **S 72**

Product-Mix Analysis
Machine Loading and Product-Mix Analysis for Group Technology (77-WA/Prod-19) (A) **Je 105**

Product Reliability
How to Write a Practical Quality Assurance Manual **N 33**
R & M Essentials: Proper Methodology, Increased Motivation, Educated Management (NR) **Ap 66**

Product Safety
Simulation—A Key to Improved Design (A Progress Report on a Case Study) (78-DE-10) (A) **S 73**
Product Sales Bans
Avoiding Product Recalls (NB) **Ap 72**
Product Utilization
How to Design and Utilize Flexible Shafts in Products (78-DE-22) (A) **S 73**
Production Cost
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/Prod-4) (A) **My 103**
Production Engineering
Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/Prod-32) (A) **Je 107**
Analytical Prediction of Three-Dimensional Cutting Process—Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) (A) **My 102**; Part 2: Chip Formation and Cutting Force with Conventional Single-Point Tool (77-WA/Prod-10) (A) **Je 104**; Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) (A) **Je 104**
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) (A) **Je 104**
On An Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/Prod-14) (A) **Je 104**
Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) (A) **Je 106**
Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) (A) **Je 107**
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/Prod-4) (A) **My 103**
The Conflicting Roles of Carbon Tetrachloride as a Boundary Lubricant (77-WA/Prod-7) (A) **Je 104**
Correlation of Tempering Effects With Temperature Distribution in Steel Cutting Tools (77-WA/Prod-16) (A) **Je 104**
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) (A) **Je 107**
Determination of Dynamic Characteristics of an Impact Forming Machine Structure (77-WA/Prod-5) (A) **My 102**
Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) (A) **Je 106**
Disk and Strip Forging With Side-Surface Foldover: Part 1—Velocity Field and Upper Bound Analysis (77-WA/Prod-36) (A) **Je 107**
Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/Prod-27) (A) **Je 106**
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/Prod-1) (A) **My 102**
An Experimental Strategy for Designing Tool Life Experiments (77-WA/Prod-24) (A) **Je 105**
Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/Prod-22) (A) **Je 105**
Flank Wear Model of Cutting Tools Using Control Theory (77-WA/Prod-20) (A) **Je 105**
Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/Prod-29) (A) **Je 107**
High Energy Water Jet Cutting Equations for Wood (77-WA/Prod-18) (A) **Je 104**
Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) (A) **Je 108**
Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) (A) **Je 107**
Limit Analysis of Hollow Disk Forging—Part 1: Upper Bound (77-WA/Prod-2) (A) **My 103**; Part 2: Lower Bound (77-WA/Prod-3) (A) **My 103**
Machining Economics and Tool Life Variation: Part 1—Basic Considerations and Their Practical Implications (77-WA/Prod-12) (A) **Je 104**; Part 2—Application to Models for Machining Processes (77-WA/Prod-13) (A) **Je 104**
Machine Loading and Product-Mix Analysis for Group Technology (77-WA/Prod-21) (A) **Je 105**
Mechanics of Rotary Dressing of Grinding Wheels (77-WA/Prod-23) (A) **Je 105**
On a New Model of Oblique Cutting (77-WA/Prod-6) (A) **Je 104**
A Numerical Method for Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) (A) **Je 107**
Optimal Edge Geometry for Maximum Tool Life (77-WA/Prod-43) (A) **Je 108**
Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) (A) **Je 106**
An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) (A) **Je 107**
Stiffness of Machine Tool Spindles (77-WA/Prod-42) (A) **Je 108**
A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) (A) **Je 104**
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/Prod-19) (A) **Je 105**
Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) (A) **Je 107**
Theory of Linear Continuous Extrusion Linex (77-WA/Prod-17) (A) **Je 104**
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) (A) **Je 104**
Tool Life Distribution: Part 3—Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-36) (A) **Je 108**; Part 4—Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) (A) **Je 108**
Toward a Hydrogen Economy (BTR) **Mr 49**
Production Goal
Oxygen: 200 Tons/Day **Ja 38**
Production Techniques
Reducing Costs With Coordinated Advanced Design and Production Techniques (78-DE-9) (A) **S 72**
Productivity Growth Objectives
Improving U.S. Productivity: Part 1—Organizing for Increasing Productivity **S 25**
Productivity Improvement
Improving Productivity in the Third Century (77-WA/Mgt-2) (A) **My 96**
Professional Collaboration
ASME Aids State Lawmakers (NR) **F 65**
Process Control Systems
Control Room of Future: CRT's Supplant Analog Displays (BTR) **F 55**
Professional Development
ASME Radwaste Course (EN) **S 62**
Individually Tailored B.S. Degree (EN) **Jl 62**
Professional Education
Professional Education (C) **N 58**
Professional Employment Guidelines
Guidelines to Professional Employment (TL) **O 106**
Guidelines to Professional Employment for Engineers and Scientists: Second Edition **Ap 36**
Professional Engineer Registration
Opposed to P.E. Registration (C) **N 58**
Professionally Speaking (C) **Mr 46**
Registration (C) **Ja 51**
Registration Observations (C) **Mr 46**
Professional Engineers
Call for Unification (C) **Je 51**
A Case for the P.E.'s Design Responsibility (PS) **Ap 79**
No Chance at "War and Peace" (C) **Je 51**
Entering Muddy Waters (C) **My 53**
NSPE Political Action Committee (NR) **Je 74**
NSPE Urges Action on Nuclear Waste Disposal (NB) **N 79**
PE's on Energy Policies (ES) **Ap 20**
On the P.E. Process (C) **S 46**
Professional Engineer's License Guide (CB) **N 126**
Professional Freedom for Responsible Practice (PS) **O 76**
Technical Innovations USA **N 22**
Unity and Unionism (C) **Je 51**
Professional Engineers' Examinations
Mechanical Engineering for Professional Engineers' Examinations Including Questions and Answers for Engineer-in-Training Review (CB) **S 78**
PE Review Courses Offered Nationally (EN) **Mr 66**
Professional Ethics
For Plain Good Character (C) **Mr 46**
Professional Goals
Goals for the Engineering Profession (TL) **My 104**
Professional Image
Costly Improvement (C) **O 45**
Professional Organizations
Tax Benefits from the Expenses Associated with Professional Organizations (PS) **D 65**
Professional Registration
Defining Engineers (C) **N 58**
Registration: What ASME Members Think About It **Mr 72**
Registration: Why Fight It? (C) **O 45**
Professional Salary Surveys
Salaries of Scientists, Engineers, and Technicians: A Summary of Salary Surveys (CB) **O 108**
Professional Societies
Professional Societies Should Collaborate **Ja 82**
Professionalism
Rice Engineering Institute (EN) **Jl 62**
Profile Loss
Profile Loss Characteristics and Heat Transfer of Full Coverage Film-Cooled Blading (78-GT-96) (A) **Ag 108**
Profile Measurements
An Evaporating Ethanol Meniscus: Part 1—Experimental Studies (78-HT-29) (A) **O 95**
Profile Shapes
A Computer Program for the Design of Turbomachinery Blades (78-GT-36) (A) **Jl 91**
Program Management
The F-16 Environmental Control System (78-ENAs-11) (A) **N 112**
Programmable Assembly Machines
An Economic Guideline for the Design of Programmable Assembly Machines (77-WA/Aut-2) (A) **Je 102**
Programming Techniques
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/Prod-4) (A) **My 103**
Project Evaluation
Research and Development Decisions Through the Use of Present Value Analysis (78-DE-2) (A) **S 72**
Project Procedure
A Guide to Project Procedure (CB) **N 127**
Projectile/Casing System
Application of a Finite Element Computer Program for Investigating Failure Mechanisms in Military Ammunition (77-WA/DE-20) (A) **Mr 96**
Propane Flames
Flame Characteristics of a NASA Contra Swirler Module (78-GT-163) (A) **Ag 116**
Propeller Pump
An Experimental Study of Diagonal Flow Propeller Pump: Design Performance with Various Types of Blading (77-WA/FE-9) (A) **Ap 94**
Propeller Thrust
Propeller Unsteady Thrust Due to Operation in Turbulent Inflows (78-GT-94) (A) **Ag 107**
Propellers
Propeller Comeback? (BTR) **Ja 54**
Property Measurements
Optical Property Measurements for Suspensions of Unicellular Algae (78-HT-14) (A) **O 93**
Proportioning Pumps
Metering and Proportioning Pumps Market to Grow 52 Percent (ND) **D 58**
Propulsion Control
Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**
Propulsion Control Technology
Full Authority Digital Electronic Control—Highlights of Next Generation Propulsion Control Technology (78-GT-165) (A) **Ag 116**
Propulsion Cycle
Propulsion Cycle and Configuration Commonality Considerations for Subsonic V/STOL Design (78-GT-88) (A) **Ag 106**
Propulsion Engine
Research of the XF3-1 Turbofan Engine (78-GT-199) (A) **S 76**
Propulsion Module
Marine Spey—SM1A Propulsion Module (78-GT-58) (A) **Jl 94**
Propulsion System Design
Propulsion System Design for the Multi-Mission Patrol Ship Mart 1/1A (78-GT-182) (A) **S 75**
Propulsion Systems
Alternative Closed-Cycle Gas Turbine System Design Considerations for Ship Propulsion Applications (78-GT-18) (A) **Jl 89**
Costs and Causes of Maintenance in a Ship's Diesel Propulsion System (77-WA/Lub-2) (A) **Jl 96**
Evolution of The Turboprop for High Speed Air Transportation (78-GT-201) (A) **S 77**
Future Prospects for Naval Propulsion Gas Turbines (78-GT-106) (A) **Ag 109**

The Gas Turbine Waste Heat Recovery System and the U.S. Navy (78-GT-170) (A) **Ag 116**
20 HP Mini-RPV Demonstrator Engine Programs (78-GT-200) (A) **S 76**
Operating Experience with the Gas Turbine Powered LNG/Ethylene Carrier "Lucian" (78-GT-35) (A) **Jl 91**
Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) (A) **Je 102**
Propulsion System Considerations for the Subsonic V/STOL (78-GT-57) (A) **Jl 94**
The Prospects for Lightweight Ship Propulsion Systems (78-GT-179) (A) **S 74**
USS Oliver Hazard Perry (FFG-7) Guided Missile Frigate Propulsion System Land Based Test Site Operational Experience (78-GT-150) (A) **Ag 115**

Propulsion Test Facilities
Propulsion Test Facilities Technical Capabilities and International Use (78-GT-184) (A) **S 75**

Prosthesis Control
Cybernetic Considerations in the Use of Myoelectric Activity for Prosthesis Control (77-WA/Bio-10) (A) **Ap 98**

Prosthesis Simulator
Feasibility of an Active Control Scheme for Above Knee Prostheses (77-WA/Bio-8) (A) **Ap 98**

Prosthetic Knee Joints
Design of a Load Simulator for the Dynamic Evaluation of Prosthetic Knee Joints (78-DET-59) (A) **D 94**

Prosthetic Sphincter
Urinary Sphincter Control System (BTR) **N 65**

Protective Clothing
Cooling Vest (BTR) **My 56**

Protective Paint
Rust Reversal Paint (IF) **O 60**

Prototype Plant
capsule-Tube Transport System (IF) **Mr 58**

Prototype Recirculation Systems
Limitations on Water Production in the Iron-Catalyzed Bosch Process (78-ENAs-4) (A) **N 110**

Prototype Tests
Prototype Tests of a New 5-MW Industrial Gas Turbine (78-GT-131) (A) **Ag 112**

Psychological Stress
Physical vs. Psychological Stress: Different Heart Rhythm (BTR) **N 64**

Public Affairs
1978 Engineers Public Affairs Forum (NR) **My 71**
Public Affairs Activities **Ag 83**

Public Educational Compaign
Educating the Public (ES) **S 21**

Public Safety
Nuclear Transport Accident Risk Slight, Study Says (BTR) **N 69**

Public Service Commission Requirements
Reliability of Operating Power Plants—A Utility Viewpoint (77-JPGC-Pwr-10) (A) **Mr 89**

Public Transportation
Public Transportation and Land Use Policy (CB) **Ja 117**

Public Understanding
Understanding the Energy Issue: The Public Needs to Know (NR) **Ja 76**

Pulfrey, D. L. *(editor)* Photovoltaic Power Generation (CB) **D 97**

Pulsed High-Energy Lasers
Thermal-Acoustical Phenomena in Pulsed High-Energy Lasers (78-HT-61) (A) **O 98**

Pulsed Light
Deadly Precision with Laser Weapon System (BTR) **N 63**

Pulsed Light Beams
Laser Guns "Fired" in Anti-Terrorist Exercises (BTR) **N 59**

Pulsed Loading Technique
Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) (A) **Je 106**

Pulsed Water Jets
Rock Breakage with Pulsed Water Jets (77-Pet-78) (A) **Ja 106**

Pump Casings
Mechanical and Thermal Stresses in the Volute of a Pump Casing (78-PVP-45) (A) **N 117**

Pump Surge Behavior
First-Order Pump Surge Behavior (77-WA/FE-12) (A) **Ap 95**

Pump-Thermal Analysis
Fast Flux Test Facility Pump-Thermal Analysis Verification (77-WA/NE-14) (A) **Je 102**

Pumps
Aircraft Fuel Pumps—Where We're At (A Review of Some Problems and Their Current Solutions) (78-GT-10) (A) **Jl 88**
Critical Speeds and Response of a Large Vertical Pump (78-PVP-34) (A) **O 105**
Design Features and Performance Characteristics of a Low Horsepower Multipurpose Pump (77-Pet-64) (A) **Ja 105**
Disk Pump Performance in Turbulent Flow (77-WA/FE-26) (A) **Ap 96**
Economic Analysis of Boiler Feed Pump Drive Alternatives (77-JPGC-Pwr-8) (A) **Mr 88**
Evaluation of Scale-Model Methods for Operability Qualification of Seismic Loading (77-PVP-63) (A) **Ja 108**
An Experimental Study of Diagonal Flow Propeller Pump: Design Performance with Various Types of Blading (77-WA/FE-9) (A) **Ap 94**
Heat Pumps (C) **Je 50**
Kinematics of an Epicyclic Gear Pump (78-DET-13) (A) **D 88**
Metering and Proportioning Pumps Market to Grow 52 Percent (NB) **D 58**
Nonlinear Transient and Spectrum Response Seismic Analysis of a Reactor Coolant Pump (78-PVP-36) (A) **O 105**
The Reversed Brayton Cycle Heat Pump—A Natural Open Cycle Heat Pump—A Natural Open Cycle for HVAC Applications (78-GT-60) (A) **Jl 95**
Submersible Motor Pump (IF) **Je 64**
Sun Power for the Pumps of Africa (BTR) **O 53**
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) (A) **Ja 110**
U.S. Army Recycles Heat and Dollars (BTR) **Ja 59**

Punch Press
"Smart" Punch Press (BTR) **Ja 61**

Purchasing Power Stalemate
Running Hard to Stand Still (BTR) **Jl 47**

Purification System
Massive Desalination System for Saudi City (BTR) **Ag 61**

Purified Fuel
Test Results of a New Distillate Fuels Purification System (78-GT-203) (A) **S 77**

Pushkarev, B. S. *(author)* Public Transportation and Land Use Policy (CB) **Ja 117**

Putnam, A. A. Salary Yardstick (C) **Jl 45**

Putnam, D. F. Microbial Check Valve for Shuttle (78-ENAs-27) (A) **N 112**

Q

Quality Assurance
Nuclear Power Plant Quality Assurance—Palliative or Panacea? **Jl 30**
Quality Assurance in R&D **S 41**

Quality Assurance Manual
How to Write a Practical Quality Assurance Manual **N 33**

Quality Control
Quality Control for Profit (CB) **Ap 107; Je 113**

Quality Evaluation
Ride Quality of Autorack Cars (77-WA/RT-7) (A) **Mr 85**

Quasi-3D Calculation Program
An Integrated Quasi-3D Finite Element Calculation Program for Turbomachinery Flows (78-GT-56) (A) **Jl 94**

Quasi-Eulerian Mesh
Quasi-Eulerian Finite Element Formulation for Fluid-Structure Interaction (78-PVP-60) (A) **N 119**

Quasi-Linear Material Motion
Integrable Generalized Wave Equations Exhibiting a Hypoelastic Compressible Rate-Sensitive Material Flow (77-WA/APM-2) (A) **Je 111**

Quasi-Three Dimensional Analysis
A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbines (78-GT-132) (A) **Ag 112**

Quick Opening Closures
High Pressure, Quick Acting Closure for Large Diameter, Full Opening, Nuclear and Petro-Chem Pressure Vessels (78-PVP-74) (A) **N 120**

Quinn, H. E. The New Electric Locomotives **Ja 43**

Quinones, D. F. A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) (A) **O 100**

Quon, C. Finite Amplitude Instability and Penetrative Convection in a Rotating Fluid (78-HT-39) (A) **O 96**

R

R-Curves
Elastic-Plastic R-Curves (78-Mat-12) (A) **O 99**

Rable, G. A New Class of Spool Valves with Built-In Dampers (78-DE-6) (A) **S 73**

Rabins, M. J. The Future for M.E.'s—Micros and Control **O 26**

Rachovitsky, E. Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**

Radar
Radar Detects Tornadoes (BTR) **Je 53**
Subsurface "Radar" Camera (BTR) **Je 54**
Zaps Low Sneak Attack (BTR) **Ja 64**

Radar Screen
System to Avoid Mid-Air Collision (BTR) **Jl 49**

Radial Compressor
Analysis of the Flow Field in a Radial Compressor (78-GT-7) (A) **Jl 87**

Radial Compressor Diffuser
Vaned Diffuser Inlet Flow Conditions for a High Pressure Ratio Centrifugal Compressor (78-GT-50) (A) **Jl 93**

Radial Compressors
Radial Compressor Development as Dictated by the Requirements of Large Turbochargers (78-GT-187) (A) **S 75**

Radial Diffusers
Experimental Investigation of Unsteady Phenomena in Vaneless Radial Diffusers (78-GT-23) (A) **Jl 89**

Radial Face Seals
Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) (A) **Mr 87**

Radial Gas Turbines
A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbines (78-GT-132) (A) **Ag 112**

Radial Heat Conduction
PIPESD/HEAT: A Transient Thermal Analyzer Evaluating Class 1 Piping Components According to Section III of the ASME Code (78-PVP-80) (A) **N 121**

Radial Inflow Turbine
A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) (A) **Ap 94**

Radial Loads
Technology Transfer in the Determination of Torque Characteristics of Instrument Ball Bearings at High Speeds with Radial and Axial Loads (78-DET-69) (A) **D 94**

Radial Stress Distribution
Stress Redistribution for the Multiring Flywheel (77-WA/DE-26) (A) **Mr 96**

Radial Roller Followers
Design Charts for Disk Cams with Reciprocating Radial Roller Followers (78-DET-36) (A) **D 91**

Radial Turbine
The Radial Turbine as a Ceramic Component (78-GT-178) (A) **S 75**

Radial Turbine Rotors
A Proposed Scheme for Computer Aided Design and Manufacture of Radial Turbine Rotors (78-GT-156) (A) **Ag 115**

Radial Turbomachines
A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**

Radial Vaneless Diffusers
Radial Vaneless Diffusers: A Re-Examination of the Theories of Dean and Senoo and of Johnston and Dean (78-GT-186) (A) **S 75**

Radiant Exchange
Radiant Exchange for a Fin and Tube Solar Collector (78-HT-33) (A) **O 96**

Radiated Noise
Noise Radiated from Hydraulic Circuits (78-DE-23) (A) **O 92**

Radiated Sound
Propeller Unsteady Thrust Due to Operation in Turbulent Inflows (78-GT-94) (A) **Ag 107**

Radiating Fluids
Finite Amplitude Benard Convection of Purely Radiating Fluids (78-HT-40) (A) **O 96**

Radiation
Acoustic Radiation from a Venturi Type Flowmeter Due to Hydrodynamic Excitation (LWBR Development Program) (77-DET-165) (A) **F 130**
Anti-Electrons at the Galactic Center (BTR) **O 48**
Big Bang Was a "Cool" Show (BTR) **F 57**
Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) (A) **O 94**
A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) (A) **O 100**

Perturbation Solutions to Phase Change Problem Subject to Convection and Radiation (77-WA/HT-16) (A) **Ap 102**

Radiation Effects in Boiling Water Reactor Pressure Vessel Steels (78-Mat-11) (A) **O 99**

The Rule of Codes, Standards and Regulations in Nuclear Pressure Vessel Surveillance Programs (78-Mat-24) (A) **O 101**

Radiation Diagnostics

Model for Radiation Diagnostics in Turbulent Arcs (78-HT-13) (A) **O 93**

Radiation Hazard

Find Hanford Wastes Not Hazardous (BTR) **Je 55**

Radiation Transfer

Optical Property Measurement for Suspensions of Unicellular Algae (78-HT-14) (A) **O 93**

Radiative Heat Transmission

Radiative Heat Transmission from Nonluminous Gases. Computational Study of the Emissivities of Carbon Dioxide (78-HT-16) (A) **O 94**

Radiative Transfer

Radiative Transfer in Hartmann MHD Flow (78-HT-18) (A) **O 94**

Radiator Assembly

Fabrication and Test of a 70 K Heat Pipe Radiator (78-ENAs-16) (A) **N 111**

Radio Link-Telemetry

Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**

Radio Telemetry System

Telemetry for Rotating Measurements on Turbomachinery (78-GT-105) (A) **Ag 108**

Radioactive Handling Equipment

Maintenance and Requalification of a Large LMFBR Component (78-JPGC-NE-1) (A) **D 84**

Radioactive Materials

Nuclear Transport Accident Risk Slight, Study Says (BTR) **N 69**

Radioactive Waste

An Evaluation of Liquid Radioactive Waste Treatment Systems for CANDU-PHW (78-JPGC-NE-17) (A) **D 86**

An Evaluation of New Filter/Demineralizer Precoat Materials (78-JPGC-NE-16) (A) **D 86**

High-Level Radwaste Patent Issued (BTR) **D 38**

Radioactivity

Radioactive Wear Measuring (IF) **Je 65**

Radiobiology

The European Life Sciences Experiments on Board the First Spacelab Mission (78-ENAs-24) (A) **N 112**

Radtke, R. P. Cavijet® Augmented Deep-Hole Drilling Bits (77-Pet-54) (A) **Ja 104**; Stratapax Drill Bit for Gulf Coast Drilling (77-Pet-74) (A) **Ja 106**

Radwaste

Experience with Cement Usage as the Binding Agent for Radwaste (78-NE-15) (A) **N 115**

Radwaste Evaporators

Evolution of Radwaste Evaporators in West Germany (77-JPGC-NE-13) (A) **Mr 91**

Radwaste Maintenance

Occupational Exposure Measurement Program at Millstone-2 (77-JPGC-NE-16) (A) **Mr 91**

Radwaste Processing

Operating Experience and Advanced Technique in Liquid Radwaste Processing (77-JPGC-NE-17) (A) **Mr 91**

Radwaste Technology

Application of European Radwaste Technology in North America (78-NE-16) (A) **N 115**

Radwaste Treatment

Acid Digestion and Pressurization Control in Combustible Radwaste Treatment (78-NE-17) (A) **N 115**

Raghavan, C. Effect of Stabilizing Thermal Gradients on Natural Convection in Rectangular Enclosures (78-HT-42) (A) **O 97**

Raghavan, M. R. Computer-Aided Synthesis of a Two-Degree-of-Freedom Planar Linkage for Function Generation (78-DET-30) (A) **D 90**; Structural Analysis of Kinematic Chains and Mechanisms Based on Matrix Representation (78-DET-29) (A) **D 90**

Rahman, A. A. Magnetohydrodynamic Solar Energy Converter (78-DET-70) (A) **D 94**; Thermoelectric Generators for Solar Energy Conversions (78-DET-75) (A) **D 95**

Rahn, R. C. Probabilistic Stress Evaluation of Piping Systems Assuming Single Snubber Failures (78-PVP-107) (A) **N 124**

Rail-Car Impacts

A Simple Dynamic Model for Stimulating Draft-Gear Behavior in Rail-Car Impacts (78-RT-2) (A) **O 90**

Rail Transportation

The Application of Fracture Control Principles to Freight Car Center-Sill Structures (78-RT-7) (A) **O 91**

Braking Duty in North American Freight Train Service and Effects on Brake Equipment, Brake Shoes and Wheels (78-RT-9) (A) **O 91**

A Car Rocking Mechanism (77-WA/RT-11) (A) **Mr 85**

The Design and Development of Heated, Impact Resistant Windshields for Locomotives (78-RT-5) (A) **O 90**

Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) (A) **Mr 84**

Energy Requirements of the Rail Mode (78-RT-1) (A) **O 90**

Feasibility Study of On-Site Flame Hardening of Rail (78-RT-8) (A) **O 91**

Higher Fuel Efficiency for EMD Diesel Locomotives (78-RT-4) (A) **O 90**

High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) (A) **Mr 84**

Hunting Stability of the Three-Axle Locomotive Truck (78-RT-6) (A) **O 91**

Lateral Stability of Freight Cars With Axles Having Different Wheel Profiles and Asymmetric Loading (78-RT-3) (A) **O 90**

A Numerical Study of the Surface Thawing of Coal Cars (77-WA/HT-33) (A) **Ap 105**

Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) (A) **Mr 85**

Progress in Railway Mechanical Engineering (1976-1977 Report of Survey Committee) Cars and Equipment (77-WA/RT-5) (A) **Mr 85**

Progress in Railway Mechanical Engineering 1976-1977 Report of Survey Committee Locomotives (77-WA/RT-12) (A) **Mr 85**

Ride Quality of Autorack Cars (77-WA/RT-7) (A) **Mr 85**

A Simple Dynamic Model for Stimulating Draft-Gear Behavior in Rail-Car Impacts (78-RT-2) (A) **O 90**

Summarization and Comparison of Freight Car Truck Load Data (77-WA/RT-3) (A) **Mr 84**

Techniques for Measuring Wheel/Rail Forces With Trackside Instrumentation (77-WA/RT-9) (A) **Mr 85**

Thermal Damage and Rail Load Stresses in a 33-In. Railroad Car Wheel (77-WA/RT-2) (A) **Mr 84**

Train Dynamics Analyzer: A Training Simulator for Locomotive Engineers (77-WA/RT-10) (A) **Mr 85**

Wear Test on Coupler Carrier Wear Plates (77-WA/RT-8) (A) **Mr 84**

Railroad Car Wheel

Thermal Damage and Rail Load Stresses in a 33-In. Railroad Car Wheel (77-WA/RT-2) (A) **Mr 84**

Railroad Cars

Meritorious Metroliners (C) **My 50**

Railroad Conference

St. Paul Hosts Railroad Conference (NR) **Mr 63**

Railroad Freight Cars

Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) (A) **Mr 85**

Railroad Load Stresses

Thermal Damage and Rail Load Stresses in a 33-In. Railroad Car Wheel (77-WA/RT-2) (A) **Mr 84**

Railroad Tracks

Feasibility Study of On-Site Flame Hardening of Rail (78-RT-8) (A) **O 91**

Railroad Wheels

Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) (A) **Mr 84**

Railroads

A Network Approach to Brake Pipe Leakage (77-WA/Rcs-10) (A) **Ap 97**

Railroad Remarks (C) **Je 50**

Railway Mechanical Engineering

Progress in Railway Mechanical Engineering 1976-1977 Report of Survey Committee Locomotives (77-WA/RT-12) (A) **Mr 85**

Progress in Railway Mechanical Engineering (1976-1977 Report of Survey Committee) Cars and Equipment (77-WA/RT-5) (A) **Mr 85**

Railway Wheelsets

Wheelset Lateral Dynamic Analysis Using the Describing Function Technique (77-DET-149) (A) **F 129**

Raise Boring

Economic Factors in Mechanical Raise Boring (77-Pet-29) (A) **Ja 101**

Raising Productivity

Raising Productivity: Ten Case Histories and Their Lessons (CB) **Mr 100**

Raiu, P. P. Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) (A) **O 102**

Raj, R. The Effect of Cycle Shape on Creep-Fatigue Interaction in Austenitic Stainless Steels (78-PVP-89) (A) **N 122**; Transpiration Air Protected Turbine Blades—An Effective Concept to Achieve High Temperature and Erosion Resistance for Gas Turbines Operating in an Aggressive Environment (78-GT-100) (A) **Ag 108**

Rajpaul, V. K. Advanced Environmental Cooling Concepts for Supersonic Aircraft (78-ENAs-21) (A) **N 112**

Ramakrishnan, C. V. Optimum Design of Fillets in Flat and Round Tension Bars (77-DET-45) (A) **Ja 112**

Ramalingam, S. Tool Life Distribution: Part 3—Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) (A) **Je 108**; Tool Life Distributions: Part 4—Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) (A) **Je 108**

Ramaprian, B. R. Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) (A) **Ap 94**

Ramesh, C. K. Forced Response of Stiffened Plates (77-DET-150) (A) **F 129**

Random Fatigue Data

Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/ Mat-1) (A) **Je 110**

Random Loading

Bending Fatigue Strength of Gear Teeth under Random Loading (77-DET-120) (A) **F 126**

Random Vibration

Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) (A) **Mr 95**

Wide-Band Band Random Vibration of Circular Plates (77-DET-97) (A) **F 123**

Randsepp, E. *(author)* Creative Growth Games (CB) **F 134**

Rangwala, A. S. Mechanical and Thermal Stresses in the Volute of a Pump Casing (78-PVP-45) (A) **N 117**

Ranjan, G. V. Mechanical Analysis of Steam Generator Tube Denting (78-NE-5) (A) **N 115**

Rao, A. C. Slider-Crank Mechanism with a Flexibly Attached Slider—Optimum Synthesis Via Geometric Programming (78-DET-31) (A) **D 90**

Rao, D. K. Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) (A) **Ja 114**

Rao, J. S. Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) (A) **Ja 114**

Rao, M. S. M. Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) (A) **O 101**

Rao, S. S. Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) (A) **Je 105**; Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/Prod-4) (A) **My 103**; Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) (A) **Je 106**

Rapid Algorithms

Rapid Algorithms for Kinematic and Dynamic Analysis of Planar Rigid Linkages with Revolute Joints (78-DET-64) (A) **D 94**

RAPIDEX Conical Reamer

The Rapidex Conical Reamer (77-Pet-31) (A) **Ja 101**

Rapid Heating Environments

Transient Temperature Measurement in Moving Fluids (77-WA/TM-3) (A) **My 96**

Rapid Transit

The Design and Development of Heated, Impact Resistant Windshields for Locomotives (78-RT-5) (A) **O 90**

Rarefied Gases

Heat Conduction Experiments in Rarefied Gases Confined Between Two Concentric Cylinders (78-HT-34) (A) **O 96**

Rasband, J. L. Solar One—A 10-MW Solar Thermal Central Receiver Pilot Plant Project (78-JPGC-Pwr-10) (A) **D 82**

Rashed, M. I. The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Cascades

(77-WA/FE-5) (A) **Ap 93**

Rate Process Calculations

Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation (77-WA/HT-45) (A) **My 100**

Ratio Disk

Jet Cooling at the Rim of a Rotating Disk (78-GT-25) (A) **Jl 89**

Ratio Optimization

Influence of Geometric Effects on the Aspect Ratio Optimization of Axial Turbine Bladings (78-GT-173) (A) **S 74**

Ratwani, M. M. Fatigue Crack Propagation in 8 and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) (A) **Je 109**

Rauch, T. A Long-Term System Dynamic Response to a Sodium-Water Reaction in a Typical LMFBR Steam Generator Loop (78-PVP-66) (A) **N 119**

Rautenberg, M. Vaneless Diffuser Flow with Extremely Distorted Inlet Profile (78-GT-47) (A) **Jl 92**

Ravindaran, A. Application of Goal Programming to Machinability Data Optimization (77-DET-19) (A) **Ja 108**

Ray, D. PIPESD/HEAT: A Transient Thermal Analyzer Evaluating Class 1 Piping Components According to Section III of the ASME Code (78-PVP-80) (A) **N 121**

Reactor Coolant Pump

Nonlinear Transient and Spectrum Response Seismic Analysis of a Reactor Coolant Pump (78-PVP-36) (A) **O 105**

Reactor Coolants

PWR Normal Shutdown Transient Response Using Runge-Kutta's Technique (78-JPGC-Pwr-1) (A) **D 82**

Reactor Cooling Water

A Look at Reactor Cooling Water (ES) **Ja 19**

Reactor Cores

Seismic Response of a Block Type Nuclear Reactor Core (77-DET-138) (A) **F 128**

Reactor Plants

Design of Sodium-Cooled Reactor Systems and Components for Maintainability (78-JPGC-NE-3) (A) **D 84**

Super Crane (BTR) **O 57**

Reactor Power

Performance of the Fort St. Vrain Steam Generators up to 70 Percent Reactor Power During the Start-Up Test Program (78-NE-8) (A) **N 114**

Reactor Pressure Vessels

Analysis of Crack Arrest in Reactor Pressure Vessels (78-Mat-16) (A) **O 100**

Effects of Irradiation on A508 Class 2 and 3 Forging Grade Steels (78-Mat-21) (A) **O 101**

Reactor Radwaste Management Workshop

Summary of the ORNL-Sponsored Reactor Radwaste Management Workshop (77-JPGC-NE-14) (A) **Mr 91**

Reactor Vessels

A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) (A) **O 100**

An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Jl 94**

A Method for Reliability Analysis of Concrete Reactor Vessels (78-PVP-100) (A) **N 123**

Safety Evaluation of Reactor Vessel Nozzle Cracks (78-PVP-90) (A) **N 122**

Surveillance Capsule Results from the Oconee Class Reactors (78-Mat-22) (A) **O 101**

Reactors

Breeder Reactor Held Vital (ES) **My 20**

Breeder Reactors (C) **D 36**

Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**

A Coupled Eulerian-Lagrangian Method for Analyzing Nonlinear Fluid-Structure Interaction Transient in Reactors (78-PVP-58) (A) **N 119**

Forced Vibration Testing of a Nuclear Fuel Assembly (77-DET-141) (A) **F 128**

Intermediate-Size Nuclear Reactors (ES) **Je 18**

Materials for Fusion Reactors (ES) **Je 19**

Non-Linear Lateral Mechanical Response of Pressurized Water Reactor Fuel Assemblies (77-WA/DE-18) (A) **Mr 95**

Nuclear Gas Turbine Power Plant Activities in the United States (77-JPGC-GT-5) (A) **Mr 93**

Optimization Analysis of a CCGT Nuclear Power Plant with Application to the HHT 3000 MWth Commercial Plant (HHT-Project) (78-GT-16) (A) **Jl 88**

Promising Fusion Device (ES) **My 21**

Structural Design Optimization of Once-Through Type Heat Exchangers (77-JPGC-NE-3) (A) **Mr 89**

Structural and Mechanical Design of Tokamaks (77-WA/NE-2) (A) **Je 100**

Tokamak Reactors (77-WA/NE-3) (A) **Je 100**

United States Uranium Position (77-JPGC-NE-25) (A) **Mr 92**

Use of Thorium in Power Reactors (77-JPGC-NE-24) (A) **Mr 92**

Reactors (BWR)

Radiation Effects in Boiling Water Reactor Pressure Vessel Steels (78-Mat-11) (A) **O 99**

Stress Corrosion Crack Growth and Fracture Predictions for BWR Piping (78-Mat-23) (A) **O 101**

Reactors (CRBRP)

Flow in the Inlet Plenum Feature Model of the Clinch River Breeder Reactor (77-WA/FE-19) (A) **Ap 96**

Intermediate Heat Exchanger Development for the Clinch River Breeder Reactor Plant (77-WA/NE-10) (A) **Je 101**

Maintenance of Clinch River Breeder Reactor Nuclear Island Systems (78-JPGC-NE-4) (A) **D 84**

A Strained Partnership (ES) **Je 18**

Reactors (EBR)

Maintenance Experience with Sodium Systems at Experimental Breeder Reactor II (EBR-II) (78-JPGC-NE-5) (A) **D 84**

Reactors (FBR)

Must We Forego Plutonium? (C) **D 36**

Thermal/Hydraulic Design of Dry-Saturated Steam Evaporators for a Large Fast Breeder Reactor Plant (78-JPGC-NE-7) (A) **D 85**

Uncertainties in Fast Breeder Reactor Fuel Pin Cladding Stress and Strain Calculations (78-PVP-54) (A) **N 118**

Reactors (HTGR)

Alternate Fuel Cycles in HTGR's (77-JPGC-NE-26) (A) **Mr 92**

Bearing Compartment Seal Systems for Turbomachinery in Direct-Cycle HTGR Power Plants (78-GT-38) (A) **Jl 91**

Core Auxiliary Heat Exchanger Design for HTGR (78-NE-9) (A) **N 114**

Reactors (LMFBR)

The Breeder—Now or Never (NR) **Je 66**

Core Mechanics and Configuration Behavior of Advanced LMFBR Core Restraint Concepts (78-PVP-49) (A) **N 118**

Development of LMFBR Steam Generator Leak Protection Systems (77-WA/NE-12) (A) **Je 102**

Finite Element Analysis of a Large Ridge Inert Atmosphere Creep Test Specimen (78-PVP-7) (A) **O 102**

A Long-Term System Dynamic Response to a Sodium-Water Reaction in a Typical LMFBR Steam Generator Loop (78-PVP-66) (A) **N 119**

Nuclear Proliferation and Nuclear Power (77-WA/TS-1) (A) **My 98**

Overview of Fuel Element Design (78-PVP-50) (A) **N 118**

Program to Establish LMFBR Commercialization (77-JPGC-NE-23) (A) **Mr 92**

Recent Advances in Evaluating Critical Heat Flux Conditions in LMFBR Steam Generators (77-WA/NE-11) (A) **Je 101**

Reactors (LWR)

The Breeder—Now or Never (NR) **Je 66, S 22**

Reactors (PWR)

Dynamic Analysis of a Pressurized Water Reactor Coolant System Subjected to Postulated Loss-of-Coolant Accident Transient Loads (77-WA/DE-23) (A) **Mr 96**

A 400-MW Modular Reactor (ES) **My 20**

Thermal-Hydraulic Performance of a Consolidated Nuclear Steam Generator (CNSG) Module (77-JPGC-NE-2) (A) **Mr 89**

Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**

Reactors (TFTR)

Waste Tritium Cleanup for the Tokamak Fusion Test Reactor (TFTR) (78-JPGC-NE-15) (A) **D 86**

Read, M. J. The Internally Insulated Liquid Natural Gas Pipeline for Arctic Gas Recovery (77-WA/HT-17) (A) **Ap 103**

Real-Time Force

Real-Time Force Line Visualization: Bioengineering Applications (77-WA/Bio-6) (A) **Mr 97**

Rear Surface Measurements

Rear Surface Noncontact Measurements of Laser Target Temperatures (78-HT-58) (A) **O 98**

Reassessments

Time for Reassessment (WW) **N 84**

Keough, J. E. A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) (A) **O 100**

Reciprocating Pumps

Analysis of Pneumatically Driven Double-Acting Reciprocating Pumps (78-DE-19) (A) **O 91**

Recirculation Systems

A Continuous Recirculation System for In-Bin Blending of Granular Solids (77-Pet-63) (A) **Ja 105**

Limitations on Water Production in the Iron-Catalyzed Bosch Process (78-ENAs-4) (A) **N 116**

Low-Cost Test Procedure for Solar Collectors (77-WA/Sol-4) (A) **My 97**

Reclamation System Designs

A Thermoelectric Integrated Membrane Evaporation System (78-ENAs-19) (A) **N 112**

Rectangular Enclosures

Effect of Stabilizing Thermal Gradients on Natural Convection in Rectangular Enclosures (78-HT-42) (A) **O 97**

Rectangular Plates

On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) (A) **Mr 93**

Free Vibration of Thin Rectangular Plates by a Mixed Finite (77-DET-143) (A) **F 128**

Rectangular Surface Cracks

Stress Analysis and Stress-Intensity Factors for Finite Geometry Solids Containing Rectangular Surface Cracks (77-WA/APM-5) (A) **Jl 97**

Recuperator Construction

The Role of the Recuperator in High Performance Gas Turbine Applications (78-GT-46) (A) **Jl 92**

Recycling

Operating Experience and Advanced Technique in Liquid Radwaste Processing (77-JPGC-NE-17) (A) **Mr 91**

U.S. Army Recycles Heat and Dollars (BTR) **Ja 59**

United States Uranium Position (77-JPGC-NE-25) (A) **Mr 92**

Reddy, C. P. Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) (A) **Je 105**

Reddy, J. N. Free Vibration of Thin Rectangular Plates by a Mixed Finite Element (77-DET-143) (A) **F 128**

Reduced Pollutant Emissions

Evaluation of Two Industrial Boilers with Combustion Modifications for Reduced Pollutant Emissions (77-WA/APC-1) (A) **My 101**

Redundant Actuators

Interactive Modeling and Analysis of Open or Closed Loop Dynamic Systems with Redundant Actuators (78-DET-42) (A) **D 92**

Reed, A. E. Fast Flux Test Facility Pump-Thermal Analysis Verification (77-WA/NE-14) (A) **Je 102**

Reed, N. G. Design and Development of a Power Turbine for the Spey Gas Generator (78-GT-183) (A) **S 75**

Reed, S. E. Analytical and Experimental Stress Analysis of a Cylinder-to-Cylinder Structure (77-PVP-11) (A) **Ja 106**

Reed, W. S. The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) (A) **Ja 109**

Reemer

The RAPIDEX Conical Reamer (77-Pet-31) (A) **Ja 101**

Reference Entries

Topics and Terms in Environmental Problems (CB) **Ag 119**

Refinement Procedures

Grid Selection and Refinement Procedures in Finite Element Analysis (78-DE-21) (A) **O 92**

Reflecting Surfaces

Reflections on Mirrors (BTR) **Jl 50**

Refrigerating System

Design of a Combined Solar Collector/Absorber/Desorber for a Solid-Absorption Refrigerating System (78-HT-35) (A) **O 95**

Refrigeration Compressor

Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) (A) **S 74**

Refrigerators

Cigar-Box-Sized Refrigerator (BTR) **Ag 57**

Refueling Outage Technology

A Demonstration of Refueling Outage Improvements (78-JPGC-NE-11) (A) **D 85**

Refuse - Fired Power Plants

Energy and Materials from Garbage (C) **Mr 46**

Refuse Processing
Incineration Plants Increase (IF) **F 62**
Regeneration Spectrum
Application of the Regeneration Spectrum to the Design of Machine Tool Chatter Control Systems (77-WA/Aut-8) (A) **Je 103**
The Regeneration Spectrum—A New Tool for the Stability Analysis of a Class of Linear Time Delayed Systems (77-WA/Aut-9) (A) **Je 103**
Regenerative Chatter Stability
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) (A) **Je 105**
Regenerative Heat Exchanger
Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**
Regenerator Design Concept
A High-Effectiveness Regenerator Design Concept (78-GT-78) (A) **Ag 105**
Regenerators
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) (A) **Ji 89**
Reggiardo, L. J. Useful Unity Overview (C) **Ji 41**
Registration
Professional Engineer's License Guide (CB) **N 126**
Why Registration? **D 16**
Registration Process
Registration (C) **Ja 51**
Regulation and Compliance
The "Great Water Pik Debate" (WW) **Je 79**
Half-Bead Weld Repairs for In-Service Applications (78-PVP-10) (A) **O 102**
Panel Urges More Accident Probes by OSHA (NR) **N 77**
Regulation to Protect the Public Interest **N 85**
The Rule of Codes, Standards and Regulations in Nuclear Pressure Vessel Surveillance Programs (78-Mat-24) (A) **O 101**
Regulations
Energy Regulations Criticized (ES) **Ap 20**
Unplugging the Regulatory Bottleneck (ES) **S 20**
Regulatory Agencies
Professional Freedom for Responsible Practice (PS) **O 76**
Victim of Bureaucratic Inertia (ES) **O 46**
Regulatory Law
EEI on Supreme Court Decision (ES) **Je 19**
Regulatory Procedures
Nuclear Licensing Delays (ES) **My 21**
Rehabilitation
Student Design Competition for 5th Annual CSDD (EN) **Mr 67**
Reid, R. C. Limitations on Water Production in the Iron-Catalyzed Bosch Process (78-ENAs-4) (A) **N 110**
Reimers, S. D. Hyperbaric Breathing Simulators for Use in the Evaluation of Underwater and Hyperbaric Breathing Apparatus (77-WA/Oce-6) (A) **Ap 93**
Reinforced Layers
Analysis of Edge-Beam Reinforced Layered Cylindrical Pressure Vessels (78-PVP-103) (A) **N 124**
Reinforced Plastics
Alert Reader (C) **O 45**
Reistad, G. M. A Thermodynamic Study of Heating With Geothermal Energy (77-WA/Ener-1) (A) **My 93**
Reller, U. Nonsteady Operational Behavior of Single-Shaft and Two-Shaft Closed-Cycle Gas Turbines (78-GT-15) (A) **Ji 88**
Reliability
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) (A) **Je 107**
Reliability Analysis
Generalized Second-Moment Reliability Analysis (78-PVP-105) (A) **N 124**
A Method for Reliability Analysis of Concrete Reactor Vessels (78-PVP-100) (A) **N 123**
Reliability Criteria
The Reliability of Gas Turbine Powered Compressor Units (78-GT-27) (A) **Ji 90**
Reliability Equations
Mechanical Reliability Confidence Limits (77-WA/DE-12) (A) **Mr 94**
Reliability & Maintainability
R & M Essentials: Proper Methodology, Increased Motivation, Educated Management (NR) **Ap 66**
Reliability Measurement
Human Performance Reliability—Its Measurement and Impact on System Reliability (78-DE-17) (A) **S 74**
Reliability Properties
Summarization and Comparison of Freight Car Truck Load Data (77-WA/RT-3) (A) **Mr 84**
Reliability Standards
An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) (A) **O 101**
Relief Valve
On the Nonlinear Response of a Relief Valve (77-DET-81) (A) **F 122**
Relyea, R. D. Heated Words on "Hot Topics" (C) **Ji 42**
Remmers, E. P. Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Radio (77-DET-68) (A) **Ja 113**
Remotely Operated Systems
Remotely Operated Ultrasonic Testing System (78-NE-3) (A) **N 114**
Renk, F. J. An Evaporating Ethanol Meniscus: Part 1—Experimental Studies (78-HT-29) (A) **O 95**
Renner, R. A. Automotive Gas Turbines (C) **Ag 50**
Renzo, P. Never Too Old for Another Gear Idea! **Mr 20**
Reorganization Plan
A Facelift for NASA (NB) **Ja 77**
Repeated Blocks
Low-Cycle Cumulative Damage with Two-Strain Repeated Blocks on a Stainless Steel at High Temperature (78-PVP-88) (A) **N 122**
Rescue Apparatus
Development of Rescue and Escape Breathing Apparatus Based on a Chlorate Candle Oxygen Source (78-ENAs-1) (A) **N 110**
Rescue Breathing Apparatus
A Lightweight, Positive Pressure Rescue Breathing Apparatus (78-ENAs-35) (A) **D 86**
Research
Application of the Finite Element Method to the Inverse Heat Conduction Problems (77-WA/TM-4) (A) **My 96**
Cooling Hot Metal Parts in Combustion Equipment (ES) **Ji 22**
Design and Operational Influence on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) (A) **My 97**
Efficient Cleaning of Hot Gases (ES) **Ji 22**
Ethyl Alcohol as Fuel (EN) **O 71**
Investigating Combustion Turbine Burner Performance with Coal Derived Liquids Having High Fuel Bound Nitrogen (78-GT-126) (A) **Ag 111**
Laser Precision in Turbine Construction (IF) **Ji 54**
Materials That Perform Under Pressure (BTR) **My 60**
Performance and Design of Transpiration-Cooled Turbine Blading (78-GT-122) (A) **Ag 111**
Research of the XF3-1 Turbofan Engine (78-GT-199) (A) **S 76**
Student Research at ORNL (EN) **Je 76**
Tokamak Reactors (77-WA/NE-3) (A) **Je 100**
What to do with Nuclear Waste (ES) **Ji 23**
Research Development
An Automatic Blending and Injection System for Tertiary Oil Recovery by Chemical Flooding (77-Pet-44) (A) **Ja 103**
Research & Development
Advanced Coal Technologies (ES) **Ap 21**
An Analysis of ERDA's National Energy Plan (77-WA/TS-2) (A) **My 98**
Answering CO_2 Questions (ES) **Ja 19**
A 1977 Approach to Sulfur Oxide Emissions (77-JPGC-Pwr-1) (A) **Mr 88**
Attributes of an Ideal Water-Base, Nonpolluting Hot Forging Lubricant (77-Lub-33) (A) **Mr 87**
Battelle in Texas (ES) **S 21**
"CANWEL"—A Canadian System for Domestic Waste Management and Energy Reclamation (77-WA/Fu-2) (A) **My 92**
Charged Filters Could Cut Pollution Costs by 80 Percent (EN) **Je 76**
Cigar-Box-Sized Refrigerator (BTR) **Ag 57**
Coal and its Consequences (BTR) **My 57**
Cooling it with Sun Power (BTR) **Mr 53**
Controlling Innovation: A People-Oriented Process **D 24**; (77-WA/Mgt-1) (A) **My 96**
The Design and Development of Heated, Impact Resistant Windshields for Locomotives (78-RT-5) (A) **O 90**
Electric Vehicles Spark Interest of 10,000 in Philadelphia (NR) **N 74**
Energy Initiatives in Texas (ES) **S 20**
Environmental Systems Conference in San Diego (NR) **Je 74**
ESCOE Advises DOE on Energy Programs (NR) **O 64**
ESCOE Offers Job Opportunities (NR) **Ap 70**
Evaluating Geothermal Reservoirs (ES) **Ap 20**
The Fuel Cell is Alive and Well (ES) **Ag 22**
Fuel Cell Power Plants Studied (BTR) **Ag 60**
Fuel Pellets from Forest Wastes (ES) **Ag 22**
The Future of Science and Technology Policymaking (NR) **Ja 75**
Geothermal Reservoir Development (BTR) **Ja 55**
H-Power in Provo (BTR) **F 58**
20 HP Mini-RPV Demonstrator Engine Programs (78-GT-200) (A) **S 76**
High-Power Laser (BTR) **F 53**
JT10D Engines: 25,000—35,000-lb Thrust Range (BTR) **O 51**
King of the Mountain—Are We Still Playing the Game? (WW) **Ji 66**
Liquid/Solid Solar Cells (BTR) **My 57**
Load-Levelling with Battery Power (BTR) **Ja 59**
Marine Gas Turbines in the Royal Navy 1976-1978 (78-GT-197) (A) **S 76**
. . .or Maybe the Electric Car? (ES) **N 20**
Milliamps Go A Long Way (BTR) **Ja 54**
More Money for Solar (ES) **O 47**
20-MVA Supercold Generator (BTR) **Ap 58**
National Small-Angle Neutron Scattering Facility (EN) **Ap 74**
A New Hooked Needle Device for Forming Fiber Beards for Length and Strength Measurement (77-Tex-2) (A) **F 131**
New Horizons for Methanol (ES) **O 46**
New Horizons for Utility Boilers (ES) **Ag 22**
Nitrogen Fixation Research (BTR) **N 62**
Our Energy Future: The Role of Research, Development, and Demonstration in Reaching a National Consensus on Energy Supply (CB) **Ja 117**
Power Generation Research (IF) **N 72**
Pre-service and In-service Inspection-Research and Development in Support of the Canadian Nuclear Power Program (78-PVP-23) (A) **O 104**
Promising Fusion Device (ES) **My 21**
Progress in Nuclear Waste Disposal (ES) **Je 18**
Promise and Progress with Silicon Nitride (ES) **S 21**
Propulsion Test Facilities Technical Capabilities and International Use (78-GT-184) (A) **S 75**
Pushing Ahead on Nuclear Safety (ES) **Ji 23**
Quality Assurance in R&D **S 41**
1978 R & D Forecast: No Real Growth (NR) **F 64**
Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) (A) **F 122**
Research and Development Decisions Through the Use of Present Value Analysis (78-DE-2) (A) **S 72**
"Rolling Cylinder" Heat Storage Device (BTR) **Mr 55**
Smaller Substations (ES) **Ap 20**
Status of the Electric Car (BTR) **Je 61**
System to Avoid Mid-Air Collision (BTR) **Ji 49**
Techniques of Pilot-Scale Drilling Research (77-Pet-68) (A) **Je 105**
Two Bills in Trouble (NB) **N 79**
UHV Effects on Ecosystem (BTR) **N 66**
Research Directory
Tribology R & D Plan **Ji 80**
College Research Directory (EN) **S 61**
Research Fellow
Research Fellow Sought (EN) **S 61**
Research Grant
Ford Research Grant (EN) **Ap 75**
Research Grants and Fellowships
Engineering Research Grants and Fellowships (NR) **O65**
Research Institutes
Fracture Mechanics Analysis of JAERI Model Pressure Vessel Test (78-PVP-91) (A) **N 122**
Research Parks
Parks for Environmentalists (ES) **Mr 19**
Research Programs
Gas Turbine Education and Research Programs in German Universities (78-GT-171) (A) **Ag 117**
Research Associateships (EN) **Ja 78**
Research Projects
Anatomy of Research Projects—Objective, Organization, Delivery (78-DET-72) (A) **D 94**
DOT Contracts (EN) **Je 76**
Reservoir
Geothermal Reservoir Development (BTR) **Ja 55**
Residential Dwellings
The Effect of Certain Major Parameters on the Annual Effectiveness of Solar Systems for Residential Dwellings (77-WA/Sol-3) (A) **My 97**
Residential Electricity
Electric Generation: Operating Economics and Unit

Availability **Ap 28**

House Power from Solar Cells (BTR) **O 56**

Residential Heating Systems

Utilities Sponsor Solar Research (ES) **Je 18**

Residential Solar Installations

"2.5 Million Solar Homes by '85" (ES) **S 21**

Residual Ductility and Stresses

Residual Ductility and Residual Stresses in Formed Heads (77-PVP-13) (A) **Ja 107**

Residual Fatigue Life

Residual Fatigue Life Determination of Anchor Bolts (78-Mat-8) (A) **O 99**

Residual-Flexibility Technique

Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) (A) **F 122**

Residual Fuel

Spectrometric Analysis of Residual Fuel (78-GT-93) (A) **Ag 107**

Residual Fuel Oils

Atomization of Crude and Residual Fuel Oils (78-GT-83) (A) **Ag 106**

Operating Experience on Residual Fuel Oil with A W251 Combustion Turbine (78-GT-104) (A) **Ag 108**

Residual Oil

Problems and Operating Experiences with Gas Turbines Burning Residual and Crude Oils (78-GT-103) (A) **Ag 108**

Residual Oil Combustion

Designing Fuel Treatment Programs for Gas-to-Oil Converted Central Station Boilers (77-JPGC-Pwr-13) (A) **Mr 89**

Residual Stress

Computation of Residual Stresses Due to Multipass Welds in Piping Systems (78-PVP-104) (A) **N 124**

A Simple Test of the Effectiveness of Stress Relief Annealing Spring Materials (77-WA/DE-21) (A) **Mr 95**

Residual Terms

Response Spectrum Method with Residual Terms (78-PVP-79) (A) **N 121**

Resins

Control of Nuclear Fuel Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**

Resistance Measurement

The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**

Resistivity

Study on the Resistivity of Various Types of Steels Against Propagating Shear Fracture by Modified West Jefferson Type Burst Test (78-PVP-71) (A) **N 120**

Resonance

Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) (A) **Mr 84**

Torsional Vibrations of a Vehicle Drive Line (77-DET-24) (A) **Ja 110**

Resonance Simulation

Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) (A) **Ja 112**

Resonant Fatigue

Elimination of a Resonant Fatigue Problem for Major Maintenance Benefits (77-DET-135) (A) **F 127**

Resource Recovery Endeavors

Fracture Discontinuities and Structural Analysis in Resource Endeavors (77-Pet-32) (A) **Ja 101**

Resource Recovery Project

Florida Opts for Solid Waste Recovery (ES) **O 47**

Resource Wastefulness

Appropriate Technology for Developed Countries (77-WA/TS-4) (A) **My 98**

RESOX®

The Latest on Sulfur (ES) **D 15**

Respiratory Flow-Time Waveform

Hyperbaric Breathing Simulators for Use in the Evaluation of Underwater and Hyperbaric Breathing Apparatus (77-WA/Oce-6) (A) **Ap 93**

Respiratory Flows

A Planar Fluidic Flowmeter Applicable to Respiratory Flows (77-WA/Flcs-1) (A) **Ap 97**

Response Spectrum Methods

Rational and Economical Multicomponent Seismic Design of Piping Systems (78-PVP-84) (A) **N 122**

Response Spectrum Method with Residual Terms (78-PVP-79) (A) **N 121**

Restraint Concepts

Core Mechanics and Configuration Behavior of Advanced LMFBR Core Restraint Concepts (78-PVP-49) (A) **N 118**

Retallack, L. J. A Specialized Microprocessor System for Decompression Management of Deep Diving (77-WA/Oce-7) (A) **Ap 93**

Rethke, D. W. Shuttle Orbiter Water Spray Boiler (78-ENAs-17) (A) **N 112**

Retina Damage

Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation (77-WA/HT-45) (A) **My 100**

Reverse Flow Region

On Vortex Wind Power (77-WA/FE-20) (A) **Ap 96**

Reverse Osmosis System

Massive Desalination System for Saudi City (BTR) **Ag 61**

Reverse Reaction Processes

Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) (A) **Je 103**

Revett, M. A. ISI Management and the Role of the Third Party Consultant (78-NE-14) (A) **N 115**

Revolute Dyad

On the Existence of Circle-Point and Center Point Circles for Three Precision-Point-Dyad Synthesis (78-DET-44) (A) **D 91**

Revolute Joints

Rapid Algorithms for Kinematic and Dynamic Analysis of Planar Rigid Linkages with Revolute Joints (78-DET-64) (A) **D 94**

Reynolds, D. J. A Car Rocking Mechanism (77-WA/RT-11) (A) **Mr 85**; Wear Test on Coupler Carrier Wear Plates (77-WA/RT-8) (A) **Mr 84**

Reynolds, E. C., Jr. A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Cost (78-GT-116) (A) **Ag 109**

Reynolds Analogy

The Effects of Streamline Curvature on Reynolds Analogy (77-WA/FE-17) (A) **Ap 95**

Reynolds Number

Effects of Fluid Leakage on Performance of a Centrifugal Compressor (78-GT-143) (A) **Ag 114**

Heat Transfer in Packed Beds at Low Reynolds Number (78-HT-46) (A) **O 97**

Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-GT-185) (A) **S 75**

A New Appraisal of Reynolds Number Effects on Centrifugal Compressor Performance (78-GT-149) (A) **Ag 114**

Response of a Tube Bank of a Turbulent Crossflow Induced Excitation (77-DET-142) (A) **F 128**

On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) (A) **F 123**

Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) (A) **O 96**

Reysa, R. P. Test Evaluation of Space Station ECLSS Maintenance Concepts (78-ENAs-43) (A) **D 87**

Rhee, S. J. Natural Convection Heat Transfer in Beds of Inductively Heated Particles (77-WA/HT-2) (A) **Ap 101**

Rheological Factors

On the Surface Durability of Gears (77-DET-58) (A) **Ja 113**

Rhodes, P. L. Combing of Opening Room Blends of Cotton and Polyester (77-Tex-5) (A) **F 132**

Rhomberg, E. J. Simplex Solution of Magnel's Method of Prestressed Concrete Beam Design (77-DET-109) (A) **F 125**

Ricardella, P. C. Fracture Mechanics Analysis of JAERI Model Pressure Vessel Test (78-PVP-91) (A) **N 122**; Safety Evaluation of Reactor Vessel Nozzle Cracks (78-PVP-90) (A) **N 122**

Rice, J. K. Elections to Fellow Grade **Ap 91**

Rich, J. Thermal Stress Effects and Surface Cracking Associated With Laser Use on Human Teeth (77-WA/Bio-3) (A) **Mr 97**; (77-WA/HT-41) (A) **My 106**

Richard, C. D. The Use of Gas Turbine Laboratories in Teaching Engineering and Non-Engineering Students (78-GT-180) (A) **S 75**

Richards, B. E. Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) (A) **Jl 89**

Richards, J. R. An Optimization Strategy for Control of SO_x from Coal-Fired Power Plants (77-JPGC-Pwr-16) (A) **Mr 89**

Richards, R. B. Program to Establish LMFBR Commercialization (77-JPGC-NE-23) (A) **Mr 92**

Richardson, R. R. The Surface Condenser as an Environmental Barrier (78-JPGC-Pwr-17) (A) **D 83**

Ricker, T. W. Design and Analysis of a Compact Array of (Class 1) Nuclear Piping for Large Anchor Movements and Seismic Supports (78—PVP-29) (A) **O 104**

Riddle, D. L. Design Algorithms for Compound Gear Train Rotors (78-DET-62) (A) **D 93**

Ridge-Path Optimization Method

New Optimization Techniques (77-DET-169) (A) **F 130**

Ridge Tensile Specimen

Finite Element Analysis of a Large Ridge Inert Atmosphere Creep Test Specimen (78-PVP-7) (A) **O 102**

Rigid Frame

Optimal Seismic Design of Plane Frames (77-DET-137) (A) **F 128**

Rigid Sliders

The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) (A) **Mr 87**

Rigid Walls

Pump-Induced Acoustic Pressure Distribution in an Annular Cavity Bounded by Rigid Walls (78-PVP-69) (A) **N 120**

Rigidity

Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) (A) **Je 105**

Rimrott, U. A. Stiffness of Machine Tool Spindles (77-WA/Prod-24) (A) **Je 108**

Rinehart, R. E. Hunting Stability of the Three-Axle Locomotive Truck (78-RT-6) (A) **O 91**

Ring Forgings

A Numerical Method for Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) (A) **Je 107**

Seamless Rolled Ring Forgings (BTR) **Ag 56**

Ring Gears

Spring of the Ring (77-DET-125) (A) **F 126**

Ring Parameters

Stress Redistribution for the Multiring Flywheel (77-WA/DE-26) (A) **Mr 96**

Ring Spinning

Calculation of Peak Tension During Ring-Spinning (77-Tex-6) (A) **F 132**

The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) (A) **F 132**

Rio, R. A. Turbine Engine Automated Trim Balancing and Vibration Diagnostics (78-GT-129) (A) **Ag 112**

Risch, D. M. A Microprocessor Based Hierarchical Control System for Gas Turbines (78-GT-124) (A) **Ag 111**

Riser

Mechanical Systems for Handling Drill Pipe, Riser, and Casing (77-Pet-77) (A) **Ja 106**

Riser Design

Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) (A) **Ja 106**

Riser Upper Joint

A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) (A) **Ja 102**

Risk Analysis

An Anatomy of Risk (CB) **F 135**

Rist, D. Influence of Geometric Effects on the Aspect Ratio Optimization of Axial Turbine Bladings (78-GT-173) (A) **S 74**

Rister, W. C. Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) (A) **Je 109**

Rivulet Thermal Model

DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) (A) **Je 101**

Roach, J. D. Design Features and Performance Characteristics of a Low Horsepower Multipurpose Pump (77-Pet-64) (A) **Ja 105**

Roadstrum, W. H. *(author)* Being Successful as an Engineer (CB) **D 97**

Robards, R. F. TVA's Cocurrent Scrubber Evaluation (77-WA/APC-8) (A) **My 102**

Roberts, A. S. Theory of Free Coiled Pressure Vessels (78-PVP-73) (A) **N 120**

Roberts, C. C., Jr. Heat Pipe Heat Exchangers for Solar Homes (77-WA/Sol-7) (A) **My 97**

Roberts, D. I. 3-D Interactive Graphics Assist Diesel Engine Design **Mr 40**

Roberts, G. W. Quality Assurance in R & D **S 41**

Roberts, J. M. DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) (A) **Je 101**

Roberts, P. B. Wide Range Operation of Advanced Low NO_x Aircraft Gas Turbine Combustors (78-GT-128) (A) **Ag 112**

Roberts, W. B. A Design Point Correlation for Losses due to Part-Span Dampers on Transonic Rotors (78-GT-153) (A) **Ag 115**

Robertson, E. E. *(author)* Bioconversion: Fuels from Biomass (CB) **My 107**

Robertson, G. D. Displacement Analysis of RRGRR Mechanism (78-DET-8) (A) **D 88**

Robin, T. T., Jr. Reliability of Operating Power Plants—A Utility Viewpoint (77-JPGC-Pwr-10) (A) **Mr 89**

Robinson, S. A Stand on Satellites (C) **My 50**

Robot Mechanic
Robot Mechanic for Spacecraft (BTR) **Ag 55**

Robotic-Type Manipulators
The Service Robot: Myths, Benefits, and Needs (78-JPGC-NE-10) (A) **D 85**

Robots
Tool-Changing Robot (BTR) **O 56**

Robson, F. L. A Low-Risk Approach to the High-Temperature Turbine (77-WA/Ener-10) (A) **My 94**

Robson, R. L. Second-Generation Integrated Coal Gasification/Combined-Cycle Power System (78-GT-14) (A) **Jl 88**

Rock-Bit Assembly
Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-68) (A) **Ja 105**

Rock/Bit-Tooth Interaction
Effects of Strain-Hardening on Rock/Bit-Tooth Interaction (77-Pet-70) (A) **Ja 105**

Rock Breakage
Rock Breakage with Pulsed Water Jets (77-Pet-78) (A) **Ja 106**

Rock Masses
Geothermal Energy: Heat Extraction From Hot Dry Rock Masses (77-Pet-41) (A) **Ja 102**

Rock Organisms
Life Found in Mars-Like Climate (BTR) **Ap 59**

Rockefeller, E. F. Food Packages for Space Shuttle (78-ENAs-13) (A) **N 111**

Rocker Links
The Elastic-Dynamic Behavior of a Counterweighted Rocker Link with an Overhanging Endmass in a Four-Bar Linkage Part I: Theory (78-DET-23) (A) **D 90**; Part II—Application and Experiment (78-DET-24) (A) **D 90**

Rocking Foundation Mats
Seismic Analysis of Piping Systems on Rocking Foundation Mat (78-PVP-40) (A) **N 117**

Rocks
Electricity in Rocks May Help Prevent Mine Disasters (EN) **Je 76**

Rod Drive System
Dynamic Analysis of a High-Speed Electrohydraulic Transient Rod Drive System (77-WA/Flcs-8) (A) **Ap 97**

Rodgers, C. A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) (A) **Jl 95**

Rodgers, D. N. Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**

Rodgers, R. C. Occupational Exposure Measurement Program at Millstone-2 (77-JPGC-NE-16) (A) **Mr 91**

Roebelen, G. J., Jr. A Thermoelectric Integrated Membrane Evaporation System (78-ENAs-19) (A) **N 112**

Rogers, D. A. Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**

Rogers, J. D. Predicting Sonic Vibration in Cross Flow Heat Exchangers—Experience and Model Testing (77-WA/DE-28) (A) **Mr 96**

Roll, L. T. C. *(author)* The Steam Engine of Thomas Newcomen (CB) **Mr 100**

Roll Deflection
Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) (A) **Je 106**

Roller/Ball Bearing Vibrations
Analysis of Roller/Ball Bearing Vibrations (77-WA/DE-5) (A) **Mr 94**

Roller Bearings
The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearings (77-Lub-8) (A) **F 133**

Lubrication of High-Speed Large Bore Tapered-Roller Bearings (77-Lub-13) (A) **F 133**

A New Approximate Approach for Elastic Body Contact in Roller Bearings (78-DE-18) (A) **S 74**

The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) (A) **F 124**

Roller Chain Drive
An Experimental Investigation of the Dynamic Behavior of a Roller Chain Drive (77-DET-168) (A) **F 130**

Roller Disk
Gearless Speed-Reduction Motor (BTR) **Ap 50**

Roller Tests
Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) (A) **Ja 112**

Rollers
Difference Between Rolling Fatigue Behaviors of Surface Hardened and of Soft Steel Rollers (77-DET-57) (A) **Ja 112**

Rolling Bearing Performance
DREB: A New Tool for Rolling Bearing Performance Simulation (78-DE-15) (A) **S 73**

Rolling Conditions
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling Sliding Conditions (77-DET-47) (A) **Ja 112**

Rolling Contact Fatigue
Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) (A) **F 132**

Rolling Disks
Determining the Coefficient of Friction for Rolling Disks (77-Lub-11) (A) **Mr 85**

Rolling Element Bearing Damage
Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) (A) **Ja 115**

Rolling-Element Fatigue Life
Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) (A) **Mr 87**

Rolling Elements
Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) (A) **Mr 86**

Rolling Fatigue Behavior
Difference Between Rolling Fatigue Behaviors of Surface Hardened and of Soft Steel Rollers (77-DET-57) (A) **Ja 112**

Rolling Key Drive
New Rolling Key Drive for Light Torque Applications (BTR) **Ag 62**

Rolling Mill Lines
Development of Sumitomo High Toughness Process (SHT) for Arctic Grade Line Pipes (77-Pet-61) (A) **Ja 104**

Rolling-Sliding Contact Surface
On the Design of Surface Durability of Rolling-Sliding Contact Surface (77-DET-115) (A) **F 125**

Rolling Sliding Steel Cylinders
A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) (A) **F 132**

Romander, C. M. Response of Water-Filled Thin-Walled Pipes to Pressure Pulses: Experiments and Analysis (78-PVP-53) (A) **N 117**

Roof Pontoons
Design of Pontoons for Floating Roofs (78-PVP-111) (A) **N 124**

Rose, J. C. *(author)* A Guide to Project Procedure (CB) **N 127**

Rosen, G. Evolution of The Turboprop for High Speed Air Transportation (78-GT-201) (A) **S 77**

Rosenfield, A. R. Analysis of Crack Arrest in Reactor Pressure Vessels (78-Mat-16) (A) **O 100**

Rosmos, W. N. Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**

Rosow, D. F. Recent Experience in Inservice Examinations (78-NE-13) (A) **N 116**

Ross, F. F. A 1977 Approach to Sulfur Oxide Emissions (77-JPGC-Pwr-1) (A) **Mr 88**; A British Approach to Sulfur Oxide Emissions **Ag 42**

Rosser, R. M. Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**

Rossetto, S. Machining Economics and Tool Life Variation: Part 1—Basic Considerations and their Practical Implications (77-WA/Prod-12) (A) **Je 104**

Rossettos, J. N. Extensional and Shear Strain Damping Mechanisms in Constrained Layer Damped Vibration (77-DET-74) (A) **Ja 114**

Rossmassler, R. Waste Tritium Cleanup for the Tokamak Fusion Test Reactor (TFTR) (78-JPGC-NE-15) (A) **D 86**

Rotary Beds
Performance of Rotary Bed Silica Gel Solid Desiccant Dryers (78-HT-36) (A) **O 95**

Rotary Ceramic Structures
A Study of Chemical Reactivity in Ceramic Heat Exchangers (78-GT-118) (A) **Ag 110**

Rotary Dressing
Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/Prod-27) (A) **Je 106**

Mechanics of Rotary Dressing of Grinding Wheels (77-WA/Prod-23) (A) **Je 105**

Rotary Engine
Industrial Rotary Engine Field Tests (BTR) **Ag 63**

Rotary Feeder Efficiency Control
California Welcomes Conference on Pneumatic Handling (NR) **My 69**

Rotary Pumps
Design Analysis of an Epicyclic Rotary Pump Mechanism (78-DET-46) (A) **D 92**

Rotary Switch
Magnetic Rotary Switch (BTR) **Mr 51**

Rotary Top Brush
Synthesis of the Plane Four-Bar Mechanism for Torque Generation, and Application to a Case Study for the Design of a New Balancing Mechanism for Rotary Top Brush in Power Wax Car Washing Machines (78-DET-71) (A) **D 94**

Rotary-Vibratory Drilling
Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-68) (A) **Ja 105**

Rotating Blades
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) (A) **Jl 90**

Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-GT-185) (A) **S 75**

Study of the Vibrations of Rotating Blades (77-DET-147) (A) **F 129**

Rotating Cavitation Instability
An Experimental Investigation of Cavitating Inducer Instability (77-WA/FE-14) (A) **Ap 95**

Rotating Cylinders
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) (A) **F 133**

Rotating Disk
Heat Transfer From Axisymmetric Sources at the Surface of a Rotating Disk (78-GT-141) (A) **Ag 114**

Rotating Duct
A Numerical Investigation of Three-Dimensional Flows in a Rotating Duct by a Partially-Parabolic Procedure (77-WA/FE-7) (A) **Ap 94**

Rotating Electromagnetic Shields
Flexural Vibrations of Rotating Electromagnetic Shields (77-WA/DE-15) (A) **Mr 95**

Rotating Flow Circuit
The Development of a Rotating Liquid Helium Flow Circuit (77-WA/HT-37) (A) **My 99**

Rotating Fluid
Finite Amplitude Instability and Penetrative Convection in a Rotating Fluid (78-HT-39) (A) **O 96**

Rotating Helium Rig
The Development of a Large-Diameter Rotating Helium Rig (77-WA/HT-38) (A) **My 99**

Rotating Machinery
Erosion Study in Turbomachinery Affected by Coal Ash Particles (78-GT-136) (A) **Ag 113**

Signature Analysis Methods and Applications for Rotating Machines (77-WA/Aut-5) (A) **Je 102**

Rotating Measurements
Telemetry for Rotating Measurements on Turbomachinery (78-GT-105) (A) **Ag 108**

Rotating Pipe
Heat Transfer in a Pipe Rotating Around A Perpendicular Axis (77-WA/HT-39) (A) **My 99**

Rotating Ring
Spring of the Ring (77-DET-125) (A) **F 126**

Rotating Shafts
Crack Propagation in Rotating Shafts (77-DET-164) (A) **F 130**

The Riccati Transfer Matrix Method (77-DET-32) (A) **Ja 110**

Rotating Stall
Investigation Concerning Rotating Stall and Surge Phenomena within Centrifugal Compressor Channels (78-GT-9) (A) **Jl 87**

Limits of Rotating Stall and Stall in Vaneless Diffuser of Centrifugal Compressors (78-GT-19) (A) **Jl 88**

Rotating Stall Control System
A Rotating Stall Control System for Turbojet Engines (78-GT-115) (A) **Ag 109**
Rotating Tool
The Geometrical Analysis on Gear Skiving of Internal Gears (77-DET-133) (A) **F 127**
Rotating Universe
Big Bang Was a "Cool" Show (BTR) **F 57**
Rotation Units
Dimensionally Correct Units for Rotation **N 129, 130**
Rotational Vibration
Rotational Vibration With Backlash: Part 1 (77-DET-105) (A) **F 124**
Roth, B. Chebychev Approximations of Finite Point Sets with Application of Planar Kinematic Synthesis (78-DET-25) (A) **D 90**; Chebychev Approximations of Spatial Point Sets Using Spheres and Planes (78-DET-4) (A) **D 88**; Symmetrical Algebraic Motions in the Plane (78-DET-40) (A) **D 92**
Roth, G. J. Load Sequences for Laboratory Simulation of Flight-by-Flight Stress Spectra (77-WA/DE-25) (A) **Mr 96**
Roth, T. S. Application of LIFE Transient Codes to Experiment and Core Design (78-PVP-51) (A) **N 118**
Rothe, P. H. First-Order Pump Surge Behavior (77-WA/FE-12) (A) **Ap 95**
Rotor Blades
Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **JI 87**
Rotor Dynamic Analysis
Critical Speeds and Response of a Large Vertical Pump (78-PVP-34) (A) **O 105**
Rotor Instability
Some Experiments on Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) (A) **Ja 109**
Rotor Passage
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) (A) **Ag 109**
Rotor Vibratory Amplitude
Synthesis of Blade Flutter Vibratory Patterns Using Stationary Transducers (78-GT-160) (A) **Ag 116**
Rotor Wake
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) (A) **Ag 109**
Rotordynamic Modal Formulations
Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) (A) **F 122**
Rotors
Critical Speeds, Stability, and Response of a Geared Train of Rotors (77-DET-30) (A) **Ja 110**
A Design Point Correlation for Losses due to Part-Span Dampers on Transonic Rotors (78-GT-153) (A) **Ag 115**
Development and Closed-Loop Testing of High Efficiency Compressors for Use with a 7000-kW Gas Turbine (78-GT-189) (A) **Ag 117**
The Development of a Large-Diameter Rotating Helium Rig (77-WA/HT-38) (A) **My 99**
The Development of a Rotating Liquid Helium Flow Circuit (77-WA/HT-37) (A) **My 99**
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) (A) **JI 95**
The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) (A) **Ja 111**
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) (A) **Mr 86**
Experimental Study of an Axial Compressor Rotor Transfer Function with Nonuniform Inlet Flow (78-GT-69) (A) **JI 96**
Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**
A Proposed Scheme for Computer Aided Design and Manufacture of Radial Turbine Rotors (78-GT-156) (A) **Ag 115**
A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) (A) **Ja 109**
Simulation of Helicopter Powerplant Performance (78-GT-51) (A) **JI 93**
The Stability of an Asymmetric Rotor in Damped Supports (78-GT-172) (A) **Ag 117**
Steady-State Unbalance Response of a Three Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) (A) **F 124**
The Three-Dimensional Flow and Blade Wake in an Axial Plane Downstream of an Axial Compressor Rotor (78-GT-66) (A) **JI 95**
Tilt Rotor Research Aircraft (BTR) **Je 55**
Transient Response of A Rotor in Damped Bearings (77-DET-21) (A) **Ja 109**
Transportable Lathe Speeds Nuclear Retrofit (BTR) **O 55**
Rough Wall
The Structure of a Boundary Layer on a Rough Wall with Blowing and Heat Transfer (78-HT-3) (A) **O 92**
Roughwall Compressible Boundary Layers
Extended Mixing-Length Hypothesis Application to Transpired or Roughwall Compressible Boundary Layers (78-HT-22) (A) **O 94**
Roukis, J. G. Thermal Energy Storage Heat Exchanger Design (78-ENAs-30) (A) **D 86**
Round Tension Bars
Optimum Design of Fillets in Flat and Round Tension Bars (77-DET-45) (A) **Ja 112**
Rouverol, S. Standard-Pitch Gearing (77-DET-56) (A) **Ja 112**
Rouverol, W. S. Standard-Pitch Gearing **Ap 40**
Rowe, G. W. *(author)* Principles of Industrial Metalworking Processes (CB) **Je 114**
Rowe, W. D. *(author)* An Anatomy of Risk (CB) **F 135**
Rowen, W. I. Operating Experience with the Gas Turbine Powered LNG/Ethylene Carrier "Lucian" (78-GT-35) (A) **JI 91**
Roy, R. H. *(author)* The Cultures of Management (CB) **Ja 116**
Roylance, B. J. Traction Behavior in Sliding ehl Contacts (77-Lub-5) (A) **F 132**
Rozeanu, L. Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) (A) **Mr 87**; Model for Gear Scoring (77-DET-60) (A) **Ja 113**; Two Temperature Gradients Model for Friction Failure (77-Lub-28) (A) **Mr 87**
Rubayi, N. A. Vibration of Cantilever Sandwich Beams (78-DE-20) (A) **O 92**
Rubber Process Industry
New Developments in Instrumentation and Control (77-WA/PID-1) (A) **My 101**
Rueth, N. Law and the Engineer **F 46**
Ruh, R. Strength Characterization of Various Silicon Base Turbine Materials (77-WA/GT-4) (A) **Ap 100**
Ruhe, A. Steam Generator Design Improvements for the CANDU Wolsung Nuclear Power Plant (78-NE-4) (A) **N 115**; Tubular Gas Turbine Recuperators (77-WA/HT-8) (A) **Ap 102**
Rummel, J. A. Life Sciences Experiments in the First Spacelab Mission (78-ENAs-26) (A) **N 113**
Runge-Kutta Technique
PWR Normal Shutdown Transient Response Using Runge-Kutta's Technique (78-JPGC-Pwr-1) (A) **D 82**
Runstadler, P. W., Jr. First-Order Pump Surge Behavior (77-WA/FE-12) (A) **Ap 95**
Runway Landing Approaches
Spectrally Balanced Chromatic Approach-Lighting System (BTR) **Ag 59**
Rupinskas, V. A Simple Method for Measuring and Monitoring Thermal Properties in Tissues (77-WA/HT-42) (A) **My 100**
Rupture Test
Acoustic Emission Monitoring During Rupture Test of Pressure Vessel and Laboratory Fracture Test (78-PVP-18) (A) **O 104**
Rush, D. J. Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**
Rush, R. E. Operating Experience with Three 20-MW Prototype Flue Gas Desulfurization Processes (78-JPGC-Pwr-12) (A) **D 83**
Russell, C. M. B. Heat Transfer Distribution on Annular Fins (78-HT-30) (A) **O 96**
Russell, R. C. The Effects of Fuel Bound Nitrogen Concentration and Water Injection on NO_x Emissions from a 75-MW Gas Turbine (78-GT-89) (A) **Ag 107**
Russell, R. J. An Investigation of Turbine Erosion by Combustor Generated Carbon in a Lightweight Marine Gas Turbine (78-GT-96) (A) **Ag 107**
Russian Imports
Big Soviet Market for Western Machine Tools (NB) **Ag 74**
Rust, J. H. For More McCormacks (C) **JI 44**
Rust Prevention
Rust Reversal Paint (IF) **O 60**
Ruzz, J. I. On-Site Generation of Hydrogen for Generator Cooling (78-GT-196) (A) **S 76**
Rybicki, E. F. Computation of Residual Stresses Due to Multipass Welds in Piping Systems (78-PVP-104) (A) **N 124**

S

Sacco, A. Limitations on Water Production in the Iron-Catalyzed Bosch Process (78-ENAs-4) (A) **N 110**
Sacco, L. R. Unity and Unionism (C) **Je 51**
Sadananda, K. Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) (A) **O 99**
Sadek, M. M. Determination of Dynamic Characteristic of an Impact Forming Machine Structure (77-WA/Prod-5) (A) **My 102**; Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/Prod-1) (A) **My 102**
Sadler, J. P. Design Analysis of an Epicyclic Rotary Pump Mechanism (78-DET-46) (A) **D 92**
Safeguards System Components
Laser Guns "Fired" in Anti-Terrorist Exercises (BTR) **N 59**
Safety
Decision-Making for Safety and Health **Je 81**
LNG is Safe (ES) **Mr 19**
Safety Engineering
Electrical Safety Engineering (CB) **N 126**
Safety Evaluation
Safety Evaluation of Reactor Vessel Nozzle Cracks (78-PVP-90) (A) **N 122**
Summarization and Comparison of Freight Car Truck Load Data (77-WA/RT-3) (A) **Mr 84**
Safety Index
Safety Index of Nuclear Concrete Containment Structures (78-PVP-106) (A) **N 124**
Safety Margins
Safety Margin of Containment of Structures Under Impulsive Loading (78-PVP-68) (A) **N 120**
Safety Measures
Handling Hazardous Materials (NB) **Ag 75**
Safety Valve Systems
Design Considerations for Surface-Controlled Subsurface Safety Valve Systems (77-Pet-45) (A) **Ja 103**
Saffell, B. F., Jr. Dynamic Analysis of a Pressurized Water Reactor Coolant System Subjected to Postulated Loss-of-Coolant Accident Transient Loads (77-WA/DE-23) (A) **Mr 96**
Sagal, M. W. Effective Technology Transfer—From Laboratory to Production Line **Ap 32**
Sagartz, M. J. Dynamic Fracture of 6061-T6 Aluminum Cylinders (77-WA/APM-14) (A) **JI 97**
Saint-Venant's Principle
Saint-Venant's Principle and End Effects in Anisotropic Elasticity (77-WA/APM-11) (A) **JI 97**
Sakai, T. Experimental Study of Diffusers for Mixed-Flow Machines (78-GT-120) (A) **Ag 110**; A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) (A) **Ja 113**; A Study on Involute Worm Gearing on Non-Right Axial Angle (77-DET-16) (A) **Ja 110**
Sakamoto, H. An Analytical Method for Fixed Tubesheet Heat Exchangers and Its Experimental Verification (78-PVP-77) (A) **N 120**
Sakata, K. Cooling Characteristics of Film Cooled Turbine Vane Having Multi-Row of Ejection Holes (78-GT-21) (A) **JI 89**
Sakuragi, I Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) (A) **F 122**
Salama, A. L. Dynamic Response of Packets of Blades by the Finite Element Method (77-DET-70) (A) **Ja 114**
Salary Survey
Recruiting Hits New High, Bachelor's Engineers Favored (EN) **N 80**
Salaries of Scientists, Engineers, and Technicians: A Summary of Salary Surveys (CB) **O 108**
Salt, D. L. Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) (A) **Ap 94**
Salt Cavern Storage Program
Salt Cavern Crude Oil Storage Program (BTR) **N 64**
Salt Domes
Energy Crisis May Have a Salt Solution (BTR) **D 42**
Saltonstall, R. The Evolution of Conservation as a Key Element of National Energy Policy (77-WA/TS-3) (A) **My 98**
Salvatori, R. Atomic Issues (Cont'd.) (C) **Ag 51**
Sampson, R. C. Stress Analysis for the Design of Liquid

Metal Piping in the Fast Flux Test Facility (78-PVP-21) (A) **O 103**

Sanbe, M. Experimental Study of Diffusers for Mixed-Flow Machines (78-GT-120) (A) **Ag 110**

Sandborn, D. M. Asperity Interactions in EHD Contacts (77-Lub-19) (A) **Mr 86**; Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) (A) **F 132**

Sanders, J. R. The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) (A) **S 72**

Sandler, Ben-Zion Cam Mechanism Accuracy (77-WA/DE-19) (A) **Mr 95**

Sandor, G. N. On the Existence of Circle-Point and Center Point Circles for Three Precision-Point-Dyad Synthesis (78-DET-44) (A) **D 91**

Sandstede, H. Gas Turbine Education and Research Programs in German Universities (78-GT-171) (A) **Ag 117**

Sandwich Beams

Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) (A) **Ja 114**

Vibration of Cantilever Sandwich Beams (78-DE-20) (A) **O 92**

Sandwich Shells

Transient Response of Thin, Thick, or Sandwich Shells and Pressure Vessels Subjected to Transient Loads (78-PVP-35) (A) **N 118**

Sankar, S. Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) (A) **F 131**; Dynamic Accuracy of Hybrid Profiling Mechanisms in Cam Manufacturing (77-WA/DE-3) (A) **Mr 93**; On the Torsional Vibration of Branched Systems Using Extended Transfer Matrix Method (77-WA/DE-4) (A) **Mr 93**

Sankar, T. S. Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) (A) **Mr 95**

Sapiro, L. Development and Closed-Loop Testing of High Efficiency Compressors for Use with a 7000-kW Gas Turbine (78-GT-189) (A) **Ag 117**

Sarau, R. W. Electric Generation: Operating Economics and Unit Availability **Ap 28**; Operating Economics and Unit Availability (77-JPGC-Pwr-5) (A) **Mr 88**

Saravanamutto, H. I. H. An Analysis Procedure for the Validation of On-Site Performance Measurements of Gas Turbines (78-GT-152) (A) **Ag 115**; Requirements for Educational Gas Turbines (78-GT-76) (A) **Ag 105**

Saravanja-Fabris, N. Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) (A) **F 129**

Sarian, S. Controlled Reluctance Eddy Current Inspection of Steam Turbine Blades (78-JPGC-Pwr-6) (A) **D 83**

Sarkisyan, Y. L. Chebychev Approximations of Finite Point Sets with Application of Planar Kinematic Synthesis (78-DET-25) (A) **D 90**; Chebychev Approximations of Spatial Point Sets Using Spheres and Planes (78-DET-4) (A) **D 88**

Sarofim, A. F. Radiative Heat Transmission from Nonluminous Gases. Computational Study of the Emissivities of Carbon Dioxide (78-HT-16) (A) **O 94**

Sarpkaya, T. Elections to Fellow Grade **My 90**

Sasaki, M. Film Cooling Effectiveness for Injection From Multirow Holes (78-GT-32) (A) **Ji 90**

Sass, D. E. Vibro-Impact Responses of a Tube with Tube-Baffle Interaction (78-PVP-20) (A) **O 103**

Satellite Solar Power

Economic and Environmental Costs of Satellite Solar Power **Ja 32**

Satellites

A Stand on Satellites (C) **My 50**

Satter, M. A. Vibration of Beams Carrying Discrete Dampers and Masses (77-WA/DE-7) (A) **Mr 94**

Saturated Porous Media

Energy Equations for Convection in Saturated Porous Media (78-HT-54) (A) **O 97**

Natural Convection from a Vertical Isothermal Surface Imbedded in a Saturated Porous Medium (78-HT-55) (A) **O 97**

Sauer, R. L. Food Packages for Space Shuttle (78-ENAs-13) (A) **N 111**; Microbial Check Valve for Shuttle (78-ENAs-27) (A) **N 112**

Sauerwine, F. Limit Analysis of Hollow Disk Forging Part 1: Upper Bound (77-WA/Prod-2) (A) **My 103**; Part 2: Lower Bound (77-WA/Prod-3) (A) **My 103**

Savery, C. W. Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (77-WA/HT-4) (A) **Ap 101**

Saw Blade Temperature

Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/Prod-22) (A) **Je 105**

Sawyer, R. H. Intermediate Heat Exchanger Development for the Clinch River Breeder Reactor Plant (77-WA/NE-10) (A) **Je 101**

Scale Modelling

Scale Modelling Saves Money (ES) **F 27**

Scale Models

Evaluation of Scale-Model Methods for Operability Qualification of Seismic Loading (77-PVP-63) (A) **Ja 108**

Scale Models Replace Piping Drawings (BTR) **S 52**

Scaling Effect

Effect of Scaling on Switching Time of Bistable Amplifiers (77-WA/Fcs-5) (A) **Ap 97**

Scanlan, R. H. *(author)* Wind Effects on Structures: An Introduction to Wind Engineering (CB) **D 97**

Scarf Joint

Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) (A) **Je 110**

Scattering

Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) (A) **O 94**

National Small-Angle Neutron Scattering Facility (EN) **Ap 74**

Optical Property Measurements for Suspensions of Unicellular Algae (78-HT-14) (A) **O 93**

A Self-Consistent Approach to Multiple Scattering by Elastic Elipsodial Inclusions (77-WA/APM-25) (A) **Ji 98**

Scavuzzo, R. J. Decoupling of Undamped Vibration System (77-PVP-7) (A) **Ja 108**

Scheffler, W. A. Well-Hole Temperature Distribution in the Presence of Aquifers—A Parametric Study (77-Pet-76) (A) **Ja 106**

Schilling, H. D. A New Concept for the Development of Coal Burning Gas Turbines (78-GT-40) (A) **Ji 91**

Schimmel, W. P., Jr. Effective Thermal Diffusivity for a Two-Layer Composite Wall Subject to Periodic Boundary Conditions (77-WA/Sol-10) (A) **My 98**; Tracking and Shadowing Models of Solar Collection Systems (77-WA/Sol-8) (A) **My 97**

Schleithoff, K. Steam Purity in German Power Plants: Standards, Operational Data and Effects on Turbine Components (78-JPGC-Pwr-20) (A) **D 84**

Schlemitz, W. P. First Face Facts (C) **Ja 51**

Schluderberg, D. C. Thermal-Hydraulic Performance of a Consolidated Nuclear Steam Generator (CNSG) Module (77-JPGC-NE-2) (A) **Mr 89**

Schmeisser, G., Jr. A Powered Medical Manipulator for the High Spinal Cord Injured Person (77-WA/Bio-13) (A) **Ap 99**

Schmidt Numbers

Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**

Schnetzenduebel, W. G. "Waste" Not (C) **My 53**

Schoeberle, D. F. Quasi-Eulerian Finite Element Formulation for Fluid-Structure Interaction (78-PVP-60) (A) **N 119**

Schoenhals, R. J. Application of the Finite Element Method to the Inverse Heat Conduction Problems (77-WA/TM-4) (A) **My 96**; Flow in a Toroidal Thermosyphon with Angular Displacement of Heated and Cooled Sections (78-HT-44) (A) **O 97**; Transient Heat and Mass Transfer in Soils (78-HT-31) (A) **O 95**

Scholarships

ACEC Scholarship (EN) **D 60**

Draftsmanship '78 (EN) **Mr 67**

Sutherland Scholarship Established (EN) **D 59**

Schreckenberg, H. A New Concept for the Development of Coal Burning Gas Turbines (78-GT-40) (A) **Ji 91**

Schreiber, C. H. Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) (A) **My 102**

Schrock, V. E. Elections to Fellow Grade **F 120**

Schroeder, J. Stress Intensity Factor Calculations for Circular Cracks at the Intersections of Pressurized Cylindrical Shells (78-PVP-24) (A) **O 104**

Schubert, F. H. Water Electrolysis System: H_2 and O_2 Generation (78-ENAs-3) (A) **N 110**

Schuetzenduebel, W. G. The Fort St. Vrain Steam Generators (78-NE-7) (A) **N 115**; Performance of the Fort St. Vrain Steam Generators up to 70 Percent Reactor Power During the Start-Up Test Program (78-NE-8) (A) **N 114**

Schull, M. Dynamic Characteristics of Double-Pipe Heat Exchangers with Double Phase Change (77-WA/HT-26) (A) **Ap 104**

Schulze, F. W. Progress in Railway Mechanical Engineering 1976-1977 Report of Survey Committee Locomotives (77-WA/RT-12) (A) **Mr 85**

Schuster, C. L. Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) (A) **Ja 103**

Schwarz, R. C. Designing Fuel Treatment Programs for Gas-to-Oil Converted Central Station Boilers (77-JPGC-Pwr-13) (A) **Mr 89**

Schweinberg, R. N. Solar One—A 10-MW Solar Thermal Central Receiver Pilot Plant Project (78-JPGC-Pwr-10) (A) **D 82**

Schwer, L. E. Response of Water-Filled Thin-Walled Pipes to Pressure Pulses: Experiments and Analysis (78-PVP-53) (A) **N 117**

Schwerzler, D. D. Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) (A) **S 74**

Science Education

ISP Offers Innovative Approach to Education (EN) **Ap 75**

Scientific Literature

McGraw-Hill Encyclopedia of Science and Technology (CB) **F 135**

The Measurement of Scientific and Technical Activities (CB) **F 135**

Scientists

Guide to Short Courses (EN) **F 69**

Guidelines to Professional Employment for Engineers and Scientists: Second Edition **Ap 36**

Scollon, T. R., Jr. Atmosphere Cloud Physics Laboratory Thermal Control (78-ENAs-9) (A) **N 111**

Scoring Factor

Model for Gear Scoring (77-DET-60) (A) **Ja 113**

Scott S. J. Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) (A) **F 123**

Scroll-Nozzle Assembly

A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) (A) **Ap 94**

Scrubber System

Bigger and Better Scrubbers (ES) **Ji 23**

Scrubbing Evaluation

TVA's Cocurrent Scrubber Evaluation (77-WA/APC-8) (A) **My 102**

Sea Path

The Path Between the Seas: The Creation of the Panama Canal (CB) **My 106**

Sealing Devices

Mechanical Seals (CB) **Je 114**

Sealing Forces

Sealing Forces for Leak-Tight Operation of a Self-Energized Pressure Vessel Closure (78-PVP-16) (A) **O 103**

Seals

Bearing Compartment Seal Systems for Turbomachinery in Direct-Cycle HTGR Power Plants (78-GT-38) (A) **Ji 91**

Design Considerations in Mechanical Face Seals for Improved performance Part 1 (77-WA/Lub-3) (A) **Ji 96**; Part 2 (77-WA/Lub-4) (A) **Ji 96**

Designing Mechanical Face Seals for Improved Performance. Part 1—Basic Configuration **N 38**; Part 2—Lubrication **D 18**

The Elastallic Seal—A New Concept in Mechanical Connection of Marine Pipelines (77-Pet-84) (A) **Ja 107**

Morrison and Parry Seals for Water Pressures up to 345 MPa (78-PVP-13) (A) **O 103**

Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) (A) **Mr 87**

Phase Change in Liquid Face Seals (77-Lub-12) (A) **Mr 85**

Seals for Geothermal Roller Drill Bits (77-Pet-53) (A) **Ja 103**

Seaman, L. A Computational Model for Fracture of Pressure Vessel Steel Derived from Experimental Data (78-PVP-92) (A) **N 122**

Seamless Rings

Seamless Rolled Ring Forgings (BTR) **Ag 56**

Sears, J. W. Reducing Costs With Coordinated Advanced Design and Production Techniques (78-DE-9) (A) **S 72**

Seamone, W. A Powered Medical Manipulator for the High Spinal Cord Injured Person (77-WA/Bio-13) (A) **Ap 99**

Seawater Submersion

Effect of Weathering and Submersion in Seawater on the Mechanical Properties of Acrylic Plastic

(77-WA/Oce-5) (A) **Ap 92**

Sebesta, P. D. Support System Considerations for STS Biological Investigations (78-ENAs-37) (A) **N 114**

Second Law-Analysis
Essergy (C) **Ja 50**

Secondary Data
Transportation Energy Conservation Data Book (CB) **My 105**

Sedlatschek, R. L. Pattern Control System Requirements for an Electronic Consumer Sewing Machine (78-DE-12) (A) **S 72**

Seffell, B. F., Jr. Non-Linear Lateral Mechanical Response of Pressurized Water Reactor Fuel Assemblies (77-WA/DE-18) (A) **Mr 95**

Segmented Mirror Solar Concentrator
Optical Design and Performance of an Inverted, Segmented Mirror Solar Concentrator (78-HT-32) (A) **O 96**

Seireg, A. Interactive Modeling and Analysis of Open or Closed Loop Dynamic Systems with Redundant Actuators (78-DET-42) (A) **D 92**; Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) (A) **Ja 112**

Seismic Adequacy
Modeling and Analysis for Seismic Adequacy in Air Handling Unit Enclosures—The Effects of Structural Reinforcement (77-DET-136) (A) **F 127**

Seismic Analyses
Decoupling Criteria for Seismic Analysis of Nuclear Power Plant Systems (78-PVP-27) (A) **O 104**
Rational and Economical Multicomponent Seismic Design of Piping Systems (78-PVP-84) (A) **N 122**
Response Spectrum Method with Residual Terms (78-PVP-79) (A) **N 121**
Seismic Analysis of the Main Steam System for 600-MWe CANDU Stations (78-PVP-87) (A) **N 121**
Seismic Analysis of Piping Systems on Rocking Foundation Mat (78-PVP-40) (A) **N 117**
Simplified Seismic Analysis Method for Small Pipes (78-PVP-43) (A) **N 117**

Seismic Category I Pumps and Valves
Evaluation of Scale-Model Methods for Operability Qualification of Seismic Loading (77-PVP-63) (A) **Ja 108**

Seismic Design
Optimal Seismic Design of Plane Frames (77-DET-137) (A) **F 128**
Seismic Design Margins for CANDU-PHW Nuclear Power Plants (78-PVP-38) (A) **N 116**
Seismic Design Study on Cantilever Cylindrical Shells (77-PVP-14) (A) **Ja 107**

Seismic Loading
Locating Pipe Supports for Combined Thermal and Seismic Loading (77-PVP-63) (A) **Ja 108**

Seismic Qualification
Modal Summing Rules for Seismic Qualification (78-PVP-32) (A) **O 105**
Seismic Qualification Testing for Shutoff Mechanism for CANDU Reactor (78-PVP-41) (A) **N 117**

Seismic Response
Seismic Response of a Block Type Nuclear Reactor Core (77-DET-138) (A) **F 128**

Seismic Span
Reduction of Allowable Seismic or Weight Piping Span Length Due to Presence of a Concentrated Mass (78-PVP-19) (A) **O 104**

Seismic Supports
Design and Analysis of a Compact Array of (Class 1) Nuclear Piping for Large Anchor Movements and Seismic Supports (78-PVP-29) (A) **O 104**

Self-Energized Pressure Vessel Closure
Sealing Forces for Leak-Tight Operation of a Self-Energized Pressure Vessel Closure (78-PVP-16) (A) **O 103**

Self-Excited Chatter Vibrations
Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) (A) **F 129**

Selfridge, R. G. Design Algorithms for Compound Gear Train Rotors (78-DET-62) (A) **D 93**

Semi-Infinite Solid
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) (A) **Je 106**

Semi-Infinite Strips
The Plane Symmetric Contact Problem for Dissimilar Elastic Semi-Infinite Strips of Different Widths (77-WA/APM-13) (A) **Ji 97**

Sen, S. The Influence of Drying and Stress on the Permeability of Texas Lignite (77-Pet-26) (A) **Ja 101**

Sendeckyj, G. P. On the Changing Order of Singularity at a Crack Tip (77-WA/APM-15) (A) **Ji 98**

Seng, W. R. The Prospects for Lightweight Ship Propulsion Systems (78-GT-179) (A) **S 74**

Senoo, Y. Experimental Study on Flow in a Supersonic Centrifugal Impeller (78-GT-2) (A) **Ji 87**; Limits of Rotating Stall and Stall in Vaneless Diffuser of Centrifugal Compressors (78-GT-10) (A) **Ji 88**

Sens, W. Advanced Turbofan Engines for Low Fuel Consumption (78-GT-192) (A) **S 76**

Sensitivity Analysis
Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) (A) **Ja 108**
Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) (A) **Ja 111**

Sensor Development
Recent Developments in Sensors for the Gas Turbine Engine (78-GT-52) (A) **Ji 94**

Separated Water Column
Column Separation as a Feedback Mechanism in Liquid Oscillators (77-WA/Fics-4) (A) **Ap 96**

Separator Design
Analysis of Flows within Particle Separators (77-WA/FE-21) (A) **Ap 96**

Separators
A Combined System of Fuel Washing Involving Both Centrifuges and Electrostatic Separators—A Hybrid (78-GT-130) (A) **Ag 112**

Serag-Eldin, M. A. Computations of Three-Dimensional Gas-Turbine Combustion Chamber Flows (78-GT-142) (A) **Ag 114**

Series Connected Mechanisms
General Forms of Index Ratios and Generation of Variable Index Ratios by Series-Connected Geneva Mechanisms with Single or Multiple Driving Pins (78-DET-28) (A) **D 90**

Serravalli, W. Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**

Server, W. L. Flaw Tolerance Evaluation of Heat Affected Zones (78-Mat-14) (A) **O 100**; Reference Fracture Toughness Curves for Irradiated Pressure Vessel Steels (78-Mat-20) (A) **O 101**

Service Reliability
One Manufacturer's View of Gas Turbine Service (78-GT-49) (A) **Ji 93**

Service Robots
The Service Robot: Myths, Benefits, and Needs (78-JPGC-NE-10) (A) **D 85**

Servo Control System Design
A Servo Control System Design for Electronic Pattern Control in a Consumer Sewing Machine (78-DE-14) (A) **S 74**

Servomechanisms
A New Class of Spool Valves with Built-In Dampers (78-DE-6) (A) **S 73**
Tool-Changing Robot (BTR) **O 56**

Seth, B. B. Signature Analysis Methods and Applications for Rotating Machines (77-WA/Aut-5) (A) **Je 102**

Seth, W. B. Atomic Issues (C) **Ji 43**

Seven-Link Mechanisms
Kinematic Analysis of a Seven-Link Mechanism (78-DET-55) (A) **D 92**

Sewage Plant
Garbage Incineration Plant (IF) **Ap 64**

Sewage Treatment
Sludge Treatment Process (IF) **Ag 67**

Sexton, R. W. Erosion-Corrosion Effects on Boiler Tube Metals in a Multisolids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**

Sforza, P. M. Heated Three-Dimensional Turbulent Jets (77-WA/HT-27) (A) **Ap 104**

Shadowing Models
Tracking and Shadowing Models for Solar Collection Systems (77-WA/Sol-8) (A) **My 97**

Shaft Couplings
Experimental Investigation of Performance Characteristics of Flexible Shaft Couplings (77-DET-129) (A) **F 127**
Shaft Couplings and the Cinderella Syndrome (77-DET-132) (A) **F 127**

Shaft Flexibility
How to Design and Utilize Flexible Shafts in Products (78-DE-22) (A) **S 73**

Shaft Systems
Torsional Response of Compressor Shaft Systems During Synchronous Motor Startup. Part I—Analytical Model (77-Pet-49) (A) **Ja 103**; Part II—Field Measurement Techniques (77-Pet-60) (A) **Ja 104**; Part III—Abnormal Motor Conditions (77-Pet-56) (A) **Ja 104**

Shafts
Displacement Analysis of Spatial 7R Mechanisms Suitable for Constant-Velocity Transmission Between Parallel Shafts (78-DET-9) (A) **D 88**

Shah, R. P. Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal (77-WA/Ener-9) (A) **My 94**

Shah, S. N. Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) (A) **Je 107**

Shah, V. N. Modal Superposition Method for Computationally Economical Nonlinear Structural Analysis (78-PVP-70) (A) **N 120**

Shahinian, P. Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) (A) **O 99**

Shaking Tables
Control of a Single-Actuator Shaking Table (77-WA/Aut-11) (A) **Je 103**

Shalan, M. R. A. The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Cascades (77-WA/FE-5) (A) **Ap 93**

Shale Oil
In Situ Extraction of Oil from Shale (BTR) **D 40**
Low NOx Combustion of Paraho Shale Oil in a 45-MW Utility Boiler (77-WA/Fu-1) (A) **My 92**

Shallow Formation
Shallow Formation Hydrofacture Mapping Experiment (77-Pet-51) (A) **Ja 103**

Shaner, R. L. Oxygen: 2000 Tons/Day **Ja 38**

Shannon, R. L. Heat Transfer Augmentation Using a Corona Discharge Air Jet (78-ENAs-8) (A) **N 111**

Shapiro, J. L. The Impact on Power Plant Design of Sulfur Distribution in Coal (78-JPGC-Pwr-13) (A) **D 83**

Sharma, R. K. An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) (A) **Ja 110**

Sharma, V. K. An Analytical Approach for Establishing Case Depth Requirements in Carburized Gears (77-DET-152) (A) **F 129**

Sharp, A. *(author)* Bicycles and Tricycles (CB) **My 105**

Sharp, J. D. An Example of Additive Damping as a Cost Savings Alternative to Redesign (77-WA/GT-2) (A) **Ap 100**; Elimination of a Resonant Fatigue Problem for Major Maintenance Benefits (77-DET-135) (A) **F 127**

Sharp, M. K. A Passive Technique for Enhancing Thermal Stratification in Liquid Storage Tanks (78-HT-50) (A) **O 97**; Stratified Versus Well-Mixed Sensible Heat Storage in a Solar Space Heating Application (78-HT-49) (A) **O 98**

Shaw, M. C. The Conflicting Roles of Carbon Tetrachloride as a Boundary Lubricant (77-WA/Prod-7) (A) **Je 104**

Shawki, G. S. A. Optimum Design of Uniform-Section Disk Springs Under Various Constraints (77-WA/DE-22) (A) **Mr 96**

Shear
Fracture Analysis of the Adhesively Bonded Cracked Panels (77-WA/Mat-2) (A) **Je 108**

Shear Deformation
Analysis of Closely Spaced Double Tubesheets Under Mechanical and Thermal Loadings (77-JPGC-NE-21) (A) **Mr 92**

Shear Flow
Triple-Correlations Closure Models in an Asymmetric Heated Plane-Jet with Negative Production (78-HT-1) (A) **O 92**

Shear Fracture
Shear Fracture Propagation by DCB Testing (77-Pet-32) (A) **Ja 101**
Study on the Resistivity of Various Types of Steels Against Propagating Shear Fracture by Modified West Jefferson Type Burst Test (78-PVP-71) (A) **N 120**

Shear Rapping
Response of Collecting Plates in Electrostatic Precipitators Due to Shear Rapping (77-DET-98) (A) **F 124**

Shear Strain Damping Mechanisms
Extensional and Shear Strain Damping Mechanisms in Constrained Layer Damped Vibration (77-DET-74) (A) **Ja 114**

Shear Stress
An Analytical Approach for Establishing Case Depth Requirements in Carburized Gears (77-DET-152) (A) **F 129**
Shear Waves
A Self-Consistent Approach to Multiple Scattering by Elastic Ellipsoidal Inclusions (77-WA/APM-25) (A) **JI 98**
Shearing Deformations
Effect of Transverse Shearing Deformations on the Coupled Twist-Bending of Curved Beams (78-PVP-102) (A) **N 124**
Sheet Metals
Introduction to Modern Sheet Metal (CB) **D 96**
Sheldon, R. C. Evaluation of a Water-Cooled Gas Turbine Combined Cycle Plant (78-GT-77) (A) **Ag 105**; The High Temperature Water Cool Gas Turbine in Combined Cycle with Integrated Low Btu Gasification (77-JPGC-GT-7) (A) **Mr 93**; The Utilization of High-Temperature Gas Turbines in Integrated Coal-Derived Fuel Combined Cycles (77-WA/Ener-12) (A) **My 95**
Shell-and-Tube Condensers
Developments in the Design of Shell-and-Tube Condensers (77-WA/HT-24) (A) **Ap 104**
Shell-and-Tube Heat Exchangers
Two-Phase Flow on the Shell-Side of a Segmentally Baffled Shell-and-Tube Heat Exchanger (77-WA/HT-22) (A) **Ap 103**
On Thermal Expansion Induced Stresses in U-Bends of Shell- and Tube-Heat Exchangers (78-JPGC-NE-14) (A) **D 86**
Shell Structures
Computer Code for Predicting the Dynamic Response of High Energy Piping, Pressure Vessels, and Shell Structures Subjected to Transient Loads and Impacts (78-PVP-33) (A) **N 116**
Safety Margin of Containment of Structures Under Impulsive Loading (78-PVP-68) (A) **N 120**
Shells
Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) (A) **O 102**
Buckling of Cylindrical Shells Subjected to Nonuniform Axial Loads (77-WA/APM-12) (A) **JI 97**
Closed-End Cylindrical Shell Under Line Load Along a Generator (78-PVP-85) (A) **N 122**
Elastic and Elastic-Plastic Buckling of Internally-Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) (A) **N 117**
Finite Element Analysis of a Cylinder-to-Plate Intersection (78-PVP-17) (A) **O 103**
Response of a Finite Thin Cylindrical Shell of Graphite Materials to a Thermal Shock (77-WA/HT-9) (A) **Ap 102**
Seismic Design Study on Cantilever Cylindrical Shells (77-PVP-14) (A) **Ja 107**
Stable Postbuckling Equilibria of Axially Compressed, Elastic Circular Cylindrical Shells: A Finite-Element Analysis and Comparison With Experiments (77-WA/APM-9) (A) **JI 97**
Stress Intensity Factor Calculations for Circular Cracks at the Intersections of Pressurized Cylindrical Shells (78-PVP-24) (A) **O 104**
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) (A) **O 101**
Sherwood, R. S. Elections to Fellow Grade **Ag 102**
Shevchuk, G. J. Flexural Vibrations of Rotating Electromagnetic Shields (77-WA/DE-15) (A) **Mr 95**
Shield Walls
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) (A) **Mr 95**
Shimachi, S. The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) (A) **Ja 113**
Shimogo, T. Stability of a Simply-Supported Beam to Randomly Spaced Moving Loads (77-DET-78) (A) **Ja 114**; Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) (A) **Ja 114**
Shimura, T. An Experimental Investigation of Cavitating Inducer Instability (77-WA/FE-14) (A) **Ap 95**
Shin, Y. S. Vibration of a Heat Exchanger Tube/Support Impact (77-JPGC-NE-5) (A) **Mr 90**; Vibro-Impact Responses of a Tube with Tube-Baffle Interaction (78-PVP-20) (A) **O 103**
Shin, Y. W. A Numerical Method Based on the Method of Characteristics for Two-Dimensional Fluid Transients (78-PVP-57) (A) **N 118**
Ship Configurations
JETFOIL In-Service Experience (78-GT-91) (A) **Ag 107**
Ship Propulsion Systems
Costs and Causes of Maintenance in a Ship's Diesel Propulsion System (77-WA/Lub-2) (A) **JI 96**
The Prospects for Lightweight Ship Propulsion Systems (78-GT-179) (A) **S 74**
Ships
Deep Water Position Measuring System for Dynamically Positioned Ships (77-Pet-39) (A) **Ja 102**
Shirakashi, T. Analytical Prediction of Three-Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) (A) **Je 104**; The Conflicting Roles of Carbon Tetrachloride as a Boundary Lubricant (77-WA/Prod-7) (A) **Je 104**
Shivaprasad, B. G. Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) (A) **Ap 94**
Shiwalker, B. D. Experimental Kinematic Analysis and a New Technique of Synthesis of an Elastic Four Bar Chain (78-DET-63) (A) **D 94**
Shock Loads
The Trailing Shoe Type Centrifugal Clutch—Design Principles and Characteristics (77-DET-126) (A) **F 126**
Shockey, D. A. A Computational Model for Fracture of Pressure Vessel Steel Derived from Experimental Data (78-PVP-92) (A) **N 122**
Shomogo, T. Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) (A) **F 123**
Shonka, D. G. *(author)* Transportation Energy Conservation Data Book (CB) **My 105**
Short Cracks
Fatigue Crack Propagation of Short Cracks (78-Mat-7) (A) **O 100**
Shrink Fit
Confidence In Fits **Mr 29**; (77-DET-130) (A) **F 127**
Shrouded Blades
Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) (A) **Ja 114**
Shu, H. T. Alternative Closed-Cycle Gas Turbine System Design Considerations for Ship Propulsion Applications (78-GT-18) (A) **JI 89**; The Prospects for Lightweight Ship Propulsion Systems (78-GT-179) (A) **S 74**
Shuck, L. Z. Stress Response Investigations Related to In-Situ Gasification of Coal (77-Pet-25) (A) **Ja 101**
Shuttle Era
Life Sciences in the Shuttle Era (78-ENAs-34) (A) **N 114**
Shuttle Facility
Science Experiments Chosen for Shuttle Facility (BTR) **My 56**
Shuttle Orbiter
Experiments Selected for 1980 Shuttle Flight (BTR) **Ap 56**
Robot Mechanic for Spacecraft (BTR) **Ag 55**
Shuttle Orbiter Water Spray Boiler (78-ENAs-17) (A) **N 112**
Shuttle/Spacelab
Animal Life Support Transporters for Shuttle/Spacelab (78-ENAs-10) (A) **N 112**
Life Support Systems for Biological Specimens in the Shuttle/Spacelab (78-ENAs-38) (A) **N 114**
Shutoff Mechanisms
Seismic Qualification Testing for Shutoff Mechanism for CANDU Reactor (78-PVP-41) (A) **N 117**
SI Units
Steam Tables: Thermodynamic Properties of Water Including Vapor, Liquid, and Solid Phases (CB) **N 127**
Siddhanty, M. N. Higher Order, Planar Tangent-Line Envelope Curvature Theory (78-DET-21) (A) **D 89**
Sidebottom, O. M. Cyclic Plasticity for Non-proportional Paths: Part 1—Comparison with Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) (A) **Je 110**; Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) (A) **Je 110**
Siegel, A. I. Human Performance Reliability—Its Measurement and Impact on System Reliability (78-DE-17) (A) **S 74**
Sigg, H. Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) (A) **F 131**
Signature Analysis Methods
Signature Analysis Methods and Applications for Rotating Machines (77-WA/Aut-5) (A) **Je 102**
Silica Gel Dryers
Performance of Rotary Bed Silica Gel Solid Desiccant Dryers (78-HT-36) (A) **O 95**
Silicon Base Turbine Materials
Strength Characterization of Various Silicon Base Turbine Materials (77-WA/GT-4) (A) **Ap 100**
Silicon Nitride
"Alternative Engine" Components (BTR) **JI 50**
Promise and Progress with Silicon Nitride (ES) **S 21**
Silo Design
Influence of Static and Dynamics Asymmetric Loading Conditions on Silo Design (77-DET-145) (A) **F 128**
Silver, L. T. United States Uranium Position (77-JPGC-NE-25) (A) **Mr 92**
Silvestric, G. J., Jr. Elections to Fellow Grade **My 90**
Sim, R. G. Development of Structural Design Criteria for Highly Irradiated Core Components (78-PVP-78) (A) **N 121**
Simiu, E. *(author)* Wind Effects on Structures: An Introduction to Wind Engineering (CB) **D 97**
Simon, H. A. *(author)* Technology, the University and the Community: A Study of the Regional Role of Engineering Colleges (CB) **Ja 116**
Simoneau, R. The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**
Simonen, F. A. Analysis of a Canister Closure Design by Damage Tolerance Concepts (78-PVP-108) (A) **N 125**; Strength of 304L Stainless Steel and Inconel Alloy 601 at Temperatures Above 1000°C (78-PVP-31) (A) **O 104**
Simonson, E. R. On the Stimulation of Geothermal Reservoir by Downward Hydraulic Fracturing (77-Pet-81) (A) **Ja 107**
Simulated Pitch Line Pitting
An Experimental and Theoretical Study of the Effects of Simulated Pitch Line Pitting on the Vibration of a Geared System (77-DET-123) (A) **F 126**
Simulated Submarine Pipeline
Effects of Variation in Velocity Profiles on a Simulated Submarine Pipeline (77-WA/Oce-4) (A) **Ap 92**
Simulation
Control of a Single-Actuator Shaking Table (77-WA/Aut-11) (A) **Je 103**
DREB: A New Tool for Rolling Bearing Performance Simulation (78-DE-15) (A) **S 73**
Simulation—A Key to Improved Design (A Progress Report on a Case Study) (78-DE-10) (A) **S 73**
Singh, A. K. Dynamic Analysis of Piping Systems Using Substructures (77-DET-144) (A) **F 128**
Singh, K. P. Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) (A) **Mr 91**; Study of Bolted Joint Integrity and Inter-Tube Pass Leakage in U-Tube Heat Exchangers—Part I: Analysis (77-WA/NE-6) (A) **Je 101**; Part II: Applications (77-WA/NE-7) (A) **Je 100**; On Thermal Expansion Induced Stresses in U-Bends of Shell- and Tube-Heat Exchangers (78-JPGC-NE-14) (A) **D 86**
Single-Actuator Shaking Table
Control of a Single-Actuator Shaking Table (77-WA/Aut-11) (A) **Je 103**
Single-Flank Gear Testing Machine
Super-Precision Single-Flank Gear Testing Machine (77-DET-118) (A) **F 126**
Single-Module Microcomputer
Low-Cost Microcomputer (BTR) **S 51**
Single-Shaft Gas Turbines
Nonsteady Operational Behavior of Single-Shaft and Two-Shaft Closed-Cycle Gas Turbines (78-GT-15) (A) **JI 88**
Single-Stage Turbine Rig
An Experimental Evaluation of a Single-Stage Water-Cooled Gas Turbine (77-JPGC-GT-2) (A) **Mr 92**
Sisto, F. Dynamic Stall of An Airfoil with Leading Edge Bubble Separation Involving Time Dependent Re-Attachment (78-GT-194) (A) **S 76**; The Reversed Brayton Cycle Heat Pump—A Natural Open Cycle for HVAC Applications (78-GT-60) (A) **JI 95**
Sittig, M. *(author)* Automotive Pollution Control Catalysts and Devices (CB) **Je 114**
Sivaram, C. Effect of Scaling on Switching Time of Bistable Amplifiers (77-WA/Flcs-5) (A) **Ap 97**
Size Constraints
Optimization of Crank-and-Rocker Linkages with Size and Transmission Constraints (78-DET-6) (A) **D 87**
Skew-Axes Gears
The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) (A) **Ja 113**
Skew Four-Bar Mechanisms
On Velocity Fluctuation in Skew Four-Bar Mechanisms (78-DET-45) (A) **D 92**
Skladaressis, D. Heat Transfer in a Pipe Rotating Around

a Perpendicular Axis (77-WA/HT-39) (A) **My 99**

Skinner, A. Requirements for Educational Gas Turbines (78-GT-76) (A) **Ag 105**

Skylab Re-Use
NASA Studies Possibilities for Skylab Re-Use (BTR) **Je 60**

Slab Response
Thermal Response of Slabs Subjected to Nonsymmetric Convective Heat Transfer (78-DE-8) (A) **S 72**

Slack, A. V. Emission Control for SO_x: An Update (78-JPGC-Pwr-11) (A) **D 82**

Slade, S. F. X. Geared to Business (C) **Jl 42**

Slagging
An Economic Evaluation of Washed Coal for the Four Corners Generating Station (77-WA/CD-2) (A) **My 101**
Slagging and Fouling Properties of Coal Ash Deposits as Determined in a Laboratory Test Facility (77-WA/Fu-6) (A) **My 93**

Sletten Det Norske Veritas, R. Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) (A) **Ap 92**

Slider-Crank Mechanism
Slider-Crank Mechanism with a Flexibly Attached Slider—Optimum Synthesis Via Geometric Programming (78-DET-31) (A) **D 90**

Sliders
The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) (A) **Mr 87**

Sliding Bearings
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) (A) **Mr 87**

Sliding Conditions
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling Sliding Conditions (77-DET-47) (A) **Ja 112**

Sliding Contacts
Flow of Friction Heat and Design Temperatures at Sliding Contacts (77-DET-113) (A) **F 125**

Sliding Friction
Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) (A) **F 123**

Sliding Point Contacts
Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) (A) **F 132**

Sliding-Rolling Concentrated Contacts
Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) (A) **Mr 86**

Sliding Surfaces
The Conflicting Roles of Carbon Tetrachloride as a Boundary Lubricant (77-WA/Prod-7) (A) **Je 104**

Slip Effect
Effect of Slip on Response of a Vibrating Compressor Blade (77-WA/GT-3) (A) **Ap 100**

Slip Regions
A Complementary Large Slip Solution in V-belt Mechanics (77-DET-162) (A) **F 130**

Slip Rings
Slip Ring Eliminator, A Clock-Spring Approach (78-DET-3) (A) **D 87**

Slot Injection
Calculation of Turbulent Boundary Layers with Tangential Slot Injection (77-WA/HT-29) (A) **Ap 104**

Slotted Pipes
Sediment Control for a Power Plant Intake Screenwell (77-JPGC-Pwr-15) (A) **Mr 89**

Slow-Bend Testing
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) (A) **O 99**

Sludge Treatment
Sludge Treatment Process (IF) **Ag 67**

Slurry Pipelines
Methacoal—Waterless Coal Slurry (BTR) **Ap 47**
Moving the Coal (ES) **Ag 23**

Slush Process
Shaping Metals-A New Way (BTR) **Ap 49**

Sluyter, M. M. MHD Heat Transfer Problems-An Overview **Mr 32**

Small Business
How to Pick the Right Small Business Opportunity: The Key to Success in Your Own Business (CB) **Ap 106**

Smalley, A. J. Critical Speeds and Response of a Large Vertical Pump (78-PVP-34) (A) **O 105**; The Dynamic Characteristics of O-Rings (77-DET-27) (A) **Ja 110**; The Stability of an Asymmetric Rotor in Damped Supports (78-GT-172) (A) **Ag 117**

Smart, M. W. Fuel Flow Elements for Automotive and Small Industrial Gas Turbines (78-GT-17) (A) **Jl 88**

Smiley, J. A. Potential Improvement of Solar Pond Efficiency by Downward Convection (77-WA/HT-6) (A) **Ap 102**

Smith, C. C. The Prediction of Passenger Riding Comfort from Acceleration Data (77-WA/Aut-6) (A) **Je 102**

Smith, D. A. Topological Reaction Force Analysis (78-DET-58) (A) **D 93**

Smith, D. K. Cementing Through Permafrost Environment (77-Pet-37) (A) **Ja 102**

Smith, D. P. Development of a Water-Cooled Gas Turbine (78-GT-72) (A) **Jl 96**

Smith, E. H. Questionable Quads (C) **Ja 51**

Smith, G. A. Controlling Innovation: A People-Oriented Process (77-WA/Mgt-1) (A) **My 96**; Controlling Innovation: A People-Oriented Process **D 24**

Smith, J. M. *(author)* Scientific Analysis on the Pocket Calculator (CB) **F 135**

Smith, J. W. Conceptual Design of a Coal-Fueled, Fluid Bed Combined Cycle Power Plant (77-WA/Ener-11) (A) **My 95**

Smith, K. F. 20 HP Mini-RPV Demonstrator Engine Programs (78-GT-200) (A) **S 76**

Smith, K. N. Fatigue Crack Propagation of Short Cracks (78-Mat-7) (A) **O 100**

Smith, N. E. Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) (A) **Ap 92**

Smith, P. D. A Method for Reliability Analysis of Concrete Reactor Vessels (78-PVP-100) (A) **N 123**

Smith, T. F. Radiant Exchange for a Fin and Tube Solar Collector (78-HT-33) (A) **O 96**; Radiative Transfer in Hartmann MHD Flow (78-HT-18) (A) **O 94**

Smith, W. D. The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) (A) **Ja 109**

Smith, W. L. Challenges to Life Support System's Future (78-ENAs-28) (A) **N 113**

Smoke Detectors
Smoke Detector Tester (BTR) **Jl 51**

Smoke-Suppressant Additives
The Effects of Smoke Suppressant and Corrosion Inhibiting Fuel Additives on the Particulate and Gaseous Emissions from a Utility Gas Turbine (78-GT-64) (A) **Jl 95**

Snarsky, L. Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) (A) **Mr 87**

Snowdon, J. C. Beamlike Dynamic Vibration Absorbers (77-DET-176) (A) **F 131**

Snubber Failures
Probabilistic Stress Evaluation of Piping Systems Assuming Single Snubber Failures (78-PVP-107) (A) **N 124**

Snyder, A. E. Formulating an International Contract for Engineering and Technical Services (77-WA/Mgt-4) (A) **My 96**

Snyder, A. I. Elections to Fellow Grade **Je 97**

So, R. M. C. The Effects of Streamline Curvature on Reynolds Analogy (77-WA/FE-17) (A) **Ap 95**; On Vortex Wind Power (77-WA/FE-20) (A) **Ap 96**

Social Implications
New Directions in Engineering Education Suggestions for Developed Countries (77-WA/TS-6) (A) **My 99**

Social Security
Social Security Tax Increases Represent Less Change than Public Led to Believe (PS) **Jl 67**
Tackling Taxing Problems (C) **N 56**

Social Values
The Foundations of Appropriate Technology: Values, Technology, and Future Reality (77-WA/TS-7) (A) **My 99**

Society of Women Engineers
SWE Conventions Go Only to ERA States (NR) **Ja 75**

Socio-Technical Concerns
Socio-Technical Concerns (C) **D 36**

Socio-Technical Project
Socio-Technical Project (EN) **My 74**

Socio-Technical View
Atomic Power Plant Insurance Act Violates the Constitution **My 80**
A Call for a Technological High Command **Jl 68**
Decision-Making for Safety and Health **Je 81**
DOE's 1978 Budget—Before It Goes Through the Mill (WW) **Mr 70**
The Holocaust and the Engineering Profession **O 75**
Industry and the Developing Countries **Ap 80**
Intersociety Socio-Technical Concerns (C) **My 51**
A National Project on Philosophy and Engineering Ethics **F 73**
Price-Anderson Atomic Plant Insurance Act: What It Is, and What It Is Not **D 66**
Professional Societies Should Collaborate **Ja 82**
Public Affairs Activities **Ag 83**
Regulation to Protect the Public Interest **N 85**
To Whom Much is Given. . . (C) **Ap 46**

Soderstrom, K. G. Thermal Design Criteria for Solar Hot Water Systems in Tropical Climates (78-HT-37) (A) **O 95**

Sodium-Cooled Reactor Plants
Design of Sodium-Cooled Reactor Systems and Components for Maintainability (78-JPGC-NE-3) (A) **D 84**

Sodium Dioxide
Emission Control for SO_x: An Update (78-JPGC-Pwr-11) (A) **D 82**

Sodium Flow Velocity Distribution
An Experimental Evaluation of the Flow Distribution in the CRBRP Modular Steam Generator (77-JPGC-NE-12) (A) **Mr 91**

Sodium Salts
An Automated Method for the Continuous Determination of Total Sodium in Fuel Oil (78-GT-92) (A) **Ag 107**

Sodium-Steam Surface Interaction
Investigations into the Sodium-Steam Surface Interaction on a Stagnant Pool (77-JPGC-NE-11) (A) **Mr 91**

Sodium Systems
Maintenance Experience with Sodium Systems at Experimental Breeder Reactor II (EBR-II) (78-JPGC-NE-5) (A) **D 84**

Sodium Testing
Fast Flux Test Facility Pump-Thermal Analysis Verification (77-WA/NE-14) (A) **Je 102**

Sodium Valves
Development of Small Sodium Valves for the Fast Flux Test Facility (77-WA/NE-13) (A) **Je 102**

Sodium-Water Leak Detection Modules
Development Testing of Leak Injection Devices for Use in Testing Sodium-Water Leak Detection Modules (77-JPGC-NE-7) (A) **Mr 90**

Sodium-Water Reaction
A Long-Term System Dynamic Response to a Sodium-Water Reaction in a Typical LMFBR Steam Generator Loop (78-PVP-66) (A) **N 119**
Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) (A) **Mr 90**

Soedel, W. Vector Loop Analysis of Wankel Compressors or Engines (78-DET-1) (A) **D 87**

Soft Energy
Soft Energy Paths: Toward a Durable Peace (CB) **D 97**

Soft Steel Rollers
Difference Between Rolling Fatigue Behaviors of Surface Hardened and of Soft Steel Rollers (77-DET-57) (A) **Ja 112**

Soft Technologies
"Elegant Frugality" via Soft Technologies (BTR) **Ap 50**

Soil Measurements
Transient Heat and Mass Transfer in Soils (78-HT-31) (A) **O 95**

Soil Parameters
Advances in Frost Heave Prediction and Mitigation Methods for Pipeline Application (77-WA/HT-19) (A) **Ap 103**

Soil Temperature Measurements
Thermal Performance Verification of Thermal Vertical Support Members for the Trans-Alaska Pipeline (77-WA/HT-34) (A) **Ap 105**

Soils
Pile Foundations in Frozen Soils (77-Pet-79) (A) **Ja 106**

Solar Array Technology
Power Production in Space (BTR) **N 65**

Solar Battery
Spinach Power Harnessed at Ohio State University (EN) **Jl 63**

Solar Cells
Higher-Efficiency Thin-Film Cells (ES) **N 21**
House Power from Solar Cells (BTR) **O 56**
Liquid/Solid Solar Cells (BTR) **My 57**
Pushing Down the Cost of Photovoltaics (ES) **Jl 23**
RCA's New Energy-Storage Cycle (ES) **D 14**
Solar Cells Now Power Weather Stations (BTR) **Ap 54**
Solar-Powered Lookout Towers (BTR) **O 49**
Sun Power for the Pumps of Africa (BTR) **O 53**

Solar Collectors
Design of a Combined Solar Collector/Absorber/Desorber for a Solid-Absorption Refrigerating System (78-HT-35) (A) **O 95**
Design of High-Efficiency Flat Plate Solar Collectors for Space and Water Heating (78-DE-7) (A) **S 73**
Design and Operational Influence on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) (A) **My 97**
Fighting Collector Corrosion (ES) **N 21**
Inexpensive High-Temperature Solar Collector (BTR) **Mr 49**
Low-Cost Test Procedure for Solar Collectors (77-WA/Sol-4) (A) **My 97**
New Stainless Steel Solar Collector (IF) **Je 64**
A "No-Flow" Method for Measuring Solar Collector Performance (77-WA/Sol-5) (A) **My 97**
Radiant Exchange for a Fin and Tube Solar Collector (78-HT-33) (A) **O 96**
Solar Collectors
Heat Conduction Experiments in Rarefied Gases Confined Between Two Concentric Cylinders (78-HT-34) (A) **O 96**
Solar Concentrator
Optical Design and Performance of an Inverted, Segmented Mirror Solar Concentrator (78-HT-32) (A) **O 96**
Solar Economics
Solar Economics (C) **My 52**
Solar-Electrical Generating System
Big Dish in Texas (ES) **O 47**
Solar Electricity
An Analysis of ERDA's National Energy Plan (77-WA/TS-2) (A) **My 98**
Solar Energy
The Breeder—Now or Never (NR) **Je 66**
Canada Hosts International Heat Transfer Conference (NR) **My 69**
The Debate: A Nuclear Proponent Speaks His Mind (BTR) **Ag 54**
Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) (A) **My 97**
DOE's 1978 Budget—Before It Goes Through the Mill (WW) **Mr 70**
The Effect of Certain Major Parameters on the Annual Effectiveness of Solar Systems for Residential Dwellings (77-WA/Sol-3) (A) **My 97**
Effective Thermal Diffusivity for a Two-Layer Composite Wall Subject to Periodic Boundary Conditions (77-WA/Sol-10) (A) **My 98**
Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/Sol-1) (A) **My 97**
Floating Factories for the Amazon (BTR) **Mr 50**
Fort Hood Goes Solar (ES) **Jl 22**
Heat Pipe Heat Exchangers for Solar Homes (77-WA/Sol-7) (A) **My 97**
Low-Cost Test Procedure for Solar Collectors (77-WA/Sol-4) (A) **My 97**
Magnetohydrodynamic Solar Energy Converter (78-DET-70) (A) **D 94**
A 'No-Flow' Method for Measuring Solar Collector Performance (77-WA/Sol-5) (A) **My 97**
Periodic Temperature of a Finite Wall Subjected to Periodic Heat Flux and Exposed to a Fluid with Periodic Temperature Variation (77-WA/Sol-6) (A) **My 98**
Reflections on Mirrors (BTR) **Jl 50**
Rosy Predictions for Heat Exchangers (ES) **N 20**
Simplicity: Key to Solar Success (BTR) **N 67**
Solar Outlook (EN) **Jl 64**
Solar Ponds (BTR) **Ja 52**
Solar-Power Mountain Concept (BTR) **Ap 49**
A Sour Note on Solar Energy (ES) **Ag 22**
Sunshine and Irrigation (ES) **Ag 22**
The Sun Shines Bright on U.S. Industry (ES) **Ja 18**
Thermoelectric Generators for Solar Energy Conversions (78-DET-75) (A) **D 95**
Thermosyphon Analysis of a Thermic Diode Solar Heating System (77-WA/Sol-9) (A) **My 98**
Tracking and Shadowing Models for Solar Collection Systems (77-WA/Sol-8) (A) **My 97**
Solar Energy Industries Association (SEIA)
Solar Energy Consumer Protection (ES) **D 14**
Solar Energy Reporter
Voice-Output Solar Energy Reporter (BTR) **S 50**
Solar Energy Research
More Money for Solar (ES) **O 47**
Solar Energy Stations
Space Machine Demonstrated (BTR) **Ag 54**
Solar Heat
Ol' Sol in Agricultural Technology (BTR) **S 53**
Sober Solar Analysis (C) **F 52**
Solar Building Breakthrough at MIT (ES) **My 21**
Solar Heating Made Easy (EN) **Jl 64**
Thermosyphon Analysis of a Thermic Diode Solar Heating System (77-WA/Sol-9) (A) **My 98**
The Wind, a Low-Grade Energy Source (77-WA/Ener-4) (A) **My 93**
Window-Mounted Auxiliary Solar Heater (BTR) **Ja 62**
Solar Homes
Heat Pipe Heat Exchangers for Solar Homes (77-WA/Sol-7) (A) **My 97**
"2.5 Million Solar Homes by '85" (ES) **S 21**
Solar Hot Water Systems
Thermal Design Criteria for Solar Hot Water Systems in Tropical Climates (78-HT-37) (A) **O 95**
Solar Panels
Photovoltaic Solar Panels (ES) **O 46**
Solar Pond Efficiency
Potential Improvement of Solar Pond Efficiency by Downward Convection (77-WA/HT-6) (A) **Ap 102**
Solar Power
Alternative Energy System (C) **My 53**
Solar Power at Less Cost (ES) **Jl 23**
Solar Power Plants
Paddle Wheeler to Harness Current (BTR) **Jl 48**
Solar-Powered Cooling System
Cooling it with Sun Power (BTR) **Mr 53**
Solar Research
Utilities Sponsor Solar Research (ES) **Je 18**
Solar Retrofits
Home Energy Auditors (ES) **Je 18**
Solar Satellite Power Station
Two Bills in Trouble (NB) **N 79**
Solar Simulator
Solar Simulator Helping to Set Standards (BTR) **O 48**
Solar Siting
A Basis for Sun Design (CB) **Jl 100**
Solar Space Heating
Stratified Versus Well-Mixed Sensible Heat Storage in a Solar Space Heating Application (78-HT-49) (A) **O 98**
Solar Surfaces
Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/Sol-1) (A) **My 97**
Solar Systems
Big Bang Was A "Cool" Show (BTR) **F 57**
The Effect of Certain Major Parameters on the Annual Effectiveness of Solar Systems for Residential Dwellings (77-WA/Sol-3) (A) **My 97**
Moon Skirting Cosmic "Fence" (BTR) **My 59**
Periodic Temperature of a Finite Wall Subjected to Periodic Heat Flux and Exposed to a Fluid with Periodic Temperature Variation (77-WA/Sol-6) (A) **My 97**
Solar Heating and Cooling: Recent Advances (CB) **Mr 101**
Solar Mega-Plant (BTR) **S 52**
Solar-Thermal Conversion
Possibilities for Solar-Thermal (ES) **Ag 23**
Solar Thermal Pilot Plant
Solar One—A 10-MW Solar Thermal Central Receiver Pilot Plant Project (78-JPGC-Pwr-10) (A) **D 82**
Solar Tracker
Simple Mechanical Solar Tracker (BTR) **S 50**
Solar Wave Power
Will Japan be First with Solar Wave Power? (BTR) **Ja 53**
Solberg, R. F., Jr. Research and Development Decisions Through the Use of Present Value Analysis (78-DE-2) (A) **S 72**
Soler, A. I. Analysis of Closely Spaced Double Tubesheets Under Mechanical and Thermal Loadings (77-JPGC-NE-21) (A) **Mr 92**; The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) (A) **Mr 91**
Solid-Absorption Refrigerating System
Design of a Combined Solar Collector/Absorber/Desorber for a Solid-Absorption Refrigerating System (78-HT-35) (A) **O 95**
Solid Desiccant Dryers
Performance of Rotary Bed Silica Gel Solid Desiccant Dryers (78-HT-36) (A) **O 95**
Solid Fuel
Fuel Pellets from Forest Wastes (ES) **Ag 22**
Solid Material
Convective Heat Transfer in Porous Media (78-HT-45) (A) **O 96**
Solid Particle Erosion
Chromizing and Turbine Solid Particle Erosion (78-JPGC-Pwr-7) (A) **D 83**
Solid-State Circuit Design
Handbook of Simplified Solid-State Circuit Design (CB) **Ag 119**
Solid-State Heat Engines
SHE Power (BTR) **D 39**
Solid Waste
The Age of Effluence: Solid Waste Into Energy **Jl 69**
"CANWEL"—A Canadian System for Domestic Waste Management and Energy Reclamation (77-WA/Fu-2) (A) **My 92**
Florida Opts for Solid Waste Recovery (ES) **O 47**
Methane from Manure (ES) **Jl 22**
Solid Waste Treatment Plant (IF) **Ja 69**; (IF) **Jl 54**
Waste Processing Conference Stresses Energy Conservation **Mr 75**
Solid Waste Disposal System
Commitment Needed (C) **F 52**
Solids
A Continuous Recirculation System for In-Bin Blending of Granular Solids (77-Pet-63) (A) **Ja 105**
Steam Tables: Thermodynamic Properties of Water Including Vapor, Liquid, and Solid Phases (CB) **N 127**
On the Tensile and Compressive Strength of Solids Weakened (Strengthened) by an Inhomogeneity (77-WA/APM-4) (A) **Je 111**
Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) (A) **Je 107**
Soni, A. H. Dynamic Analysis of Spatial Mechanisms Using Fuel Successive Screw Method and D'Alembert's Principle (78-DET-22) (A) **D 90**; Higher Order, Planar Tangent-Line Envelope Curvature Theory (78-DET-21) (A) **D 89**; A Survey of Cam Manufacture Methods (78-DET-65) (A) **D 94**
Sonic Vibration
Predicting Sonic Vibration in Cross Flow Heat Exchangers—Experience and Model Testing (77-WA/DE-28) (A) **Mr 96**
Soo, S. L. Space Charge Reduction in EHD Via Fluidic Switching (77-WA/Ener-3) (A) **My 93**
Sotter, J. G. Evaluation of Two Industrial Boilers with Combustion Modifications for Reduced Pollutant Emmissions (77-WA/APC-1) (A) **My 101**
Sound Velocity
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) (A) **Mr 86**
Space
The Permanent Occupation of Space (NR) **Ja 70**
Space-Age Design
A Space-Age Mating (BTR) **Mr 52**
Space Charge Reduction
Space Charge Reduction in EHD Via Fluidic Switching (77-WA/Ener-3) (A) **My 93**
Space Heating
Design of High-Efficiency Flat Plate Solar Collectors for Space and Water Heating (78-DE-7) (A) **S 73**
Space Locations
A Strategy for the Optimum Design of Acoustic Space (77-DET-44) (A) **Ja 111**
Space Machine
Space Machine Demonstrated (BTR) **Ag 54**
Space Nausea
Vestibular Function Research Aboard Spacelab (78-ENAs-25) (A) **N 112**
Space Power
Power Production in Space (BTR) **N 65**
Space Shuttle
Active Thermal Control Subsystem Development (78-ENAs-6) (A) **N 110**
Earth's Largest Space Museum (NR) **Mr 62**
Microbial Check Valve for Shuttle (78-ENAs-27) (A) **N 112**
Science Experiments Chosen for Shuttle Facility (BTR) **My 56**
Shuttle Booster Recovery System (BTR) **D 41**
Space Station Systems
ECLSS Definition for a Low-Cost Space Construction Base (78-ENAs-15) (A) **N 112**
Space Technology
Experiments Selected for 1980 Shuttle Flight (BTR) **Ap 58**
Space Toggle
A Case Study for Bionics: The Space Toggle (78-DET-47) (A) **D 92**
Space Transportation Systems
Challenges to Life Support System's Future (78-ENAs-28)

(A) **N 113**
Support System Considerations for STS Biological Investigations (78-ENAs-37) (A) **N 114**
Spacecraft
Robot Mechanic for Spacecraft (BTR) **Ag 55**
Spacelab
The Spacelab Flight Unit Environmental Control/Life Support System (78-ENAs-14) (A) **N 111**
Vestibular Function Research Aboard Spacelab (78-ENAs-25) (A) **N 112**
Spacelab Missions
The European Life Sciences Experiments on Board the First Spacelab Mission (78-ENAs-24) (A) **N 112**
Life Sciences Experiments in The First Spacelab Mission (78-ENAs-26) (A) **N 113**
Spacelab Payloads
Atmosphere Cloud Physics Laboratory Thermal Control (78-ENAs-9) (A) **N 111**
An Experiment Cooling Loop for Spacelab Payloads (78-ENAs-29) (A) **N 113**
Space Shuttle
Food Packages for Space Shuttle (78-ENAs-13) (A) **N 111**
Space Station Prototype
Test Evaluation of Space Station ECLSS Maintenance Concepts (78-ENAs-43) (A) **D 87**
Spalding, D. B. Computations of Three-Dimensional Gas-Turbine Combustion Chamber Flows (78-GT-142) (A) **Ag 114**; Heat Transfer in a Pipe Rotating Around a Perpendicular Axis (77-WA/HT-39) (A) **My 99**; A Numerical Investigation of Three-Dimensional Flows in a Rotating Duct by a Partially-Parabolic Procedure (77-WA/FE-7) (A) **Ap 94**
Spalding, E. G. A Combined System of Fuel Washing Involving Both Centrifuges and Electrostatic Separators—A Hybrid (78-GT-130) (A) **Ag 112**
Spamer, T. Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) (A) **Je 109**
Spatial Linkages
Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) (A) **Mr 94**
Spatial Mechanisms
Displacement Analysis of RRGRR Mechanism (78-DET-8) (A) **D 88**
Displacement Analysis of Spatial 7R Mechanisms Suitable for Constant-Velocity Transmission Between Parallel Shafts (78-DET-9) (A) **D 88**
Displacement Analysis of a Spatial 7R Mechanism—A Generalized Lobster's Arm (78-DET-10) (A) **D 89**
Dynamic Analysis of Spatial Mechanisms Using Fuel Successive Screw Method and D'Alembert's Principle (78-DET-22) (A) **D 90**
Limit Positions of Spatial Linkages via Connectivity Sum Reduction (78-DET-12) (A) **D 88**
Spatial Point Sets
Chebychev Approximations of Spatial Point Sets Using Spheres and Planes (78-DET-4) (A) **D 88**
Spectral Analogy
Spectral Analogy Between Temperature and Velocity Fluctuations in Various Turbulent Flows (78-HT-2) (A) **O 92**
Spectral Function
Comparison of Analytical Model with Approximate Models for Total Band Absorption and its Derivative (78-HT-15) (A) **O 93**
Spectral Theory
Cam Mechanism Accuracy (77-WA/DE-19) (A) **Mr 95**
Spectrometric Analysis
Spectrometric Analysis of Residual Fuel (78-GT-93) (A) **Ag 107**
Spectrum Crack Growth
Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) (A) **Je 109**
Spectrum Response Analysis
Nonlinear Transient and Spectrum Response Seismic Analysis of a Reactor Coolant Pump (78-PVP-36) (A) **O 105**
Speed Reducer
Weight Minimization of a Speed Reducer (77-DET-163) (A) **F 130**
Speeds
Critical Speeds, Stability, and Response of a Geared Train of Rotors (77-DET-30) (A) **Ja 110**
Spence, J. The Effect of Thickness Variations on the Behaviour of Smooth Curved Pipes Under External Bending (78-PVP-93) (A) **TN 123**
Spent Fuel
Control of Nuclear Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**
"Waste" Not (C) **My 53**
Sperberg, R. T. Development Testing of Leak Injection Devices for Use in Testing Sodium-Water Leak Detection Modules (77-JPGC-NE-7) (A) **Mr 90**
Sperman, J. H. Entering Muddy Waters (C) **My 53**
Sphere Acceleration
Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) (A) **Ap 94**
Spheres
Analysis of Mixed Convection About a Sphere with Uniform Surface Heat Flux (77-WA/HT-1) (A) **Ap 101**
Chebychev Approximations of Spatial Point Sets Using Spheres and Planes (78-DET-4) (A) **D 88**
The Elastic Field Outside an Ellipsoidal Inclusion (77-WA/APM-29) (A) **Jl 99**
Spherical Acrylic Pressure Hulls
Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) (A) **Ap 92**
Spherical Dome
Three-Dimensional Elasticity Solution of a Spherical Dome (77-WA/APM-26) (A) **Jl 98**
Spinal Cord Injuries
A Powered Medical Manipulator for the High Spinal Cord Injured Person (77-WA/Bio-13) (A) **Ap 99**
Spintig, J. The Spacelab Flight Unit Environmental Control/Life Support System (78-ENAs-14) (A) **N 111**
Spiral Bevel Gears
Lattice Contact in Generated Spiral Bevel Gears (77-DET-63) (A) **Ja 113**
Spitznagel, K. L. Multiparametric Optimization of Four-Bar Linkages (78-DET-7) (A) **D 87**
Sponseller, D. L. Results of Sulfide Stress Cracking Tests in Different Laboratories on SAE 4135 Steel Modified with 0.75 Percent Mo and 0.035 Percent Cb (77-Pet-48) (A) **Ja 103**
Spool Valves
A New, Class of Spool Valves with Built-In Dampers (78-DE-6) (A) **S 73**
Spray Cooling Systems
Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) (A) **Ap 94**
Spray Flames
Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) (A) **My 96**
Spring Fatigue
Spring Fatigue Recommended Design Stresses (78-DE-5) (A) **S 73**
Spring Technology
Spring Designer's Handbook (CB) **Ag 119**
Springs
Optimum Design of Uniform-Section Disk Springs Under Various Constraints (77-WA/DE-22) (A) **Mr 96**
A Simple Test of the Effectiveness of Stress Relief Annealing Spring Materials (77-WA/DE-21) (A) **Mr 95**
SPRUANCE Class Destroyers
The Gas Turbine Waste Heat Recovery System and the U.S. Navy (78-GT-170) (A) **Ag 116**
Spur Gears
Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) (A) **F 124**
Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) (A) **F 126**
The Practical Significance of Designing to Gear Pitting Fatigue Life Criteria (77-DET-122) (A) **F 126**
Study of Lubrication Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) (A) **F 124**
Transmission Errors and Noise of Spur Gears Having Uneven Tooth Profile Errors (77-DET-51) (A) **Ja 112**
Squeeze Film Bearing
An Investigation Into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) (A) **Mr 86**
Squeeze Film Bearing Damper Forces
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) (A) **Ja 109**
Squeeze Film Dampers
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) (A) **Mr 86**
Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) (A) **Ja 109**
Sridhara, K. Jet Curtain Flameholder for Aircraft Afterburners (78-GT-95) (A) **Ag 107**
Srinivasan, A. V. Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) (A) **Ja 114**
Srinivasan, K. Application of the Regeneration Spectrum to the Design of Machine Tool Chatter Control Systems (77-WA/Aut-8) (A) **Je 103**; Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) (A) **Je 108**; Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) (A) **Je 108**; The Regeneration Spectrum—A New Tool for the Stability Analysis of a Class of Linear Time Delayed Systems (77-WA/Aut-9) (A) **Je 103**
Srinivasan, M. G. Dynamic Plastic Response of an Immersed Pipe (77-PVP-8) (A) **Ja 107**
Srinivasulu, P. *(author)* Handbook of Machine Foundations (CB) **S 78**
Stability
Aeroelastic Stability Analysis of Supersonic Cascades (78-GT-151) (A) **Ag 115**
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) (A) **Ja 110**
Application of the Regeneration Spectrum to the Design of Machine Tool Chatter Control Systems (77-WA/Aut-8) (A) **Je 103**
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) (A) **Je 105**
Critical Speeds, Stability, and Response of a Geared Train of Rotors (77-DET-30) (A) **Ja 110**
Dynamic Stability of Fixed-Fixed and Free-Free Timoshenko Beams Resting on an Elastic Foundation (77-DET-134) (A) **F 127**
Flame Characteristics of a NASA Contra Swirler Module (78-GT-163) (A) **Ag 116**
High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) (A) **Mr 84**
Jet Curtain Flameholder for Aircraft Afterburners (78-GT-95) (A) **Ag 107**
Lateral Stability of Freight Cars With Axles Having Different Wheel Profiles and Asymmetric Loading (78-RT-3) (A) **O 90**
Linear Stability of Jet Flows (77-WA/APM-10) (A) **Je 111**
Quasi-Bifurcation in Dynamics of Elastic-Plastic Continua (77-WA/APM-3) (A) **Je 111**
The Stability of an Asymmetric Rotor in Damped Supports (78-GT-172) (A) **Ag 117**
Stability of Elastically Restrained Timoshenko Cantilevers With Attached Masses Subjected to a Follower Force (77-WA/APM-7) (A) **Jl 97**
Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) (A) **Ja 114**
The Stability of the Three-Way Underlapped Hydraulic Spool Servovalve (77-WA/Fcs-9) (A) **Ap 98**
Stabilizing and Destabilizing Effects of Coriolis Force on Two-Dimensional Laminar and Turbulent Boundary Layers (78-GT-1) (A) **Jl 87**
Stability Analysis
The Regeneration Spectrum—A New Tool for the Stability Analysis of a Class of Linear Time Delayed Systems (77-WA/Aut-9) (A) **Je 103**
A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) (A) **Ja 109**
Stability Design Criteria
Stability Design Criteria for Vessels Subjected to Concurrent External Pressure and Longitudinal Compressive Loads (78-PVP-110) (A) **N 125**
Stabilized Flames
Weak Extinction Limits of Turbulent Flowing Mixtures (78-GT-144) (A) **Ag 114**
Stabilizing Effect
Effect of Stabilizing Thermal Gradients on Natural Convection in Rectangular Enclosures (78-HT-42) (A) **O 97**
Stachiw, J. D. Effect of Weathering and Submersion in Seawater on the Mechanical Properties of Acrylic Plastic (77-WA/Oce-5) (A) **Ap 92**; Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) (A) **Ap 92**; Structural Performance of Acrylic Plastic Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) (A) **Ap 92**; Effect of Weathering and Submersion in Seawater on the Mechanical Properties of Acrylic Plastic (77-WA/Oce-5) (A) **Ap 92**
Stadler, E. L. Mechanical and Thermal Stresses in the Volute of a Pump Casing (78-PVP-45) (A) **N 117**

Stage Stacking Technique
A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) (A) **Ag 113**
Stagnation Temperature
A "No-Flow" Method for Measuring Solar Collector Performance (77-WA/Sol-5) (A) **My 97**
Stainless Steel Pipes
Attenuation of Weak Pressure Waves in a Simple Piping Loop (78-PVP-61) (A) **N 119**
Stainless Steel Lines
Stress Corrosion Crack Growth and Fracture Predictions for BWR Piping (78-Mat-23) (A) **O 101**
Stainless Steel Solar Collector
New Stainless Steel Solar Collector (IF) **Je 64**
Stainless Steel Weldments
Metallurgical Causes of Difficulties with Ultrasonic Inspection of Austenitic Welds (78-PVP-8) (A) **O 102**
On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) (A) **O 98**
Stainless Steels
The Effect of Cycle Shape on Creep-Fatigue Interaction in Austenitic Stainless Steels (78-PVP-89) (A) **N 122**
Frequency Effects in the Elevated Temperature Crack Growth Behavior of Austenitic Stainless Steel—A Design Approach (78-PVP-97) (A) **N 123**
Low-Cycle Cumulative Damage with Two-Strain Repeated Blocks on a Stainless Steel at High Temperature (78-PVP-88) (A) **N 122**
Significance of Delta Ferrite Content to Fatigue Crack Growth Resistance of Austenitic Stainless Steel Weld Deposits (78-PVP-9) (A) **O 102**
Strength of 304L Stainless Steel and Inconel Alloy 601 at Temperatures Above 1000°C (78-PVP-31) (A) **O 104**
Stall
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) (A) **Ji 95**
Dynamic Stall of An Airfoil with Leading Edge Bubble Separation Involving Time Dependent Re-Attachment (78-GT-194) (A) **S 76**
Investigation Concerning Rotating Stall and Surge Phenomena within Centrifugal Compressor Channels (78-GT-9) (A) **Ji 87**
Limits of Rotating Stall and Stall in Vaneless Diffuser of Centrifugal Compressors (78-GT-19) (A) **Ji 88**
A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) (A) **Ag 113**
Reasons for Centrifugal Compressor Surging and Surge Control (78-GT-28) (A) **Ji 90**
Standard C-Shaped Specimen
J_{Ic} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) (A) **O 99**
Standard-Pitch Gearing
Standard-Pitch Gearing (77-DET-56) (A) **Ja 112**
Standards Development
The Word on Computer Standards (CT) **Ag 82**
Stango, R. J. Grid Selection and Refinement Procedures in Finite Element Analysis (78-DE-21) (A) **O 92**
Stanitz, J. D. Elections to Fellow Grade **Ag 192**
Stankovich, I. D. Problems in Control of Particulates in Bulk Material Handling (77-WA/APC-5) (A) **My 102**
Stanley, J. S. Conversion of Gas Pipeline to Liquids Service (77-Pet-18) (A) **Ja 100**
Stanley, R. E. Radial Compressor Development as Dictated by the Requirements of Large Turbochargers (78-GT-187) (A) **S 75**
Staph, H. E. Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) (A) **Mr 86**
Start-Up Test Program
Performance of the Fort St. Vrain Steam Generators up to 70 Percent Reactor Power During the Start-Up Test Program (78-NE-8) (A) **N 114**
Stasi, W. Heated Three-Dimensional Turbulent Jets (77-WA/HT-27) (A) **Ap 104**
Stastny, M. Flow in an Annular Axial-Radial Diffuser (78-GT-133) (A) **Ag 112**
Static Feed Water Electrolysis
Water Electrolysis System: H_2 and O_2 Generation (78-ENAs-3) (A) **N 110**
Static Fatigue Life
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) (A) **Ap 92**
Static Fracture Toughness
Flaw Tolerance Evaluation of Heat Affected Zones (78-Mat-14) (A) **O 100**
Static Loading Conditions
Influence of Static and Dynamics Asymmetric Loading Conditions on Silo Design (77-DET-145) (A) **F 128**
Static Loads
Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) (A) **O 99**
The Theory of Static Loads in Bins (77-WA/APM-1) (A) **Je 111**
Static Rigidity
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) (A) **Je 105**
Static Stiffness
Stiffness of Machine Tool Spindles (77-WA/Prod-42) (A) **Je 108**
Stationary Transducers
Synthesis of Blade Flutter Vibratory Patterns Using Stationary Transducers (78-GT-160) (A) **Ag 116**
Stauffer, D. J. Optimal Edge Geometry for Maximum Tool Life (77-WA/Prod-43) (A) **Je 108**
Steady-State Flow
Investigation of Heat Transfer Between an Electric Arc and a Turbulent Gas Flow in a Channel (78-HT-8) (A) **O 92**
Steady-State Flow Rates
Flow in a Toroidal Thermosyphon with Angular Displacement of Heated and Cooled Sections (78-HT-44) (A) **O 97**
Steady-State Heat Fluxes
Critical Steady-State Heat Fluxes Causing Melting or Evaporation of the Anode in a High Intensity Arc (78-HT-10) (A) **O 93**
Steady-State Motion
Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) (A) **Ja 115**
Steady-State Response
An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) (A) **Ja 110**
Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) (A) **Ja 112**
The Steady-State Response of Systems With Hardening Hysteresis (77-DET-71) (A) **Ja 109**
Steady-State Vibration
Alternatives Tuned Absorbers for Steady-State Vibration Control of Tall Structures (77-DET-84) (A) **Ja 115**
Steam
A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) (A) **My 95**
Thermal Conductivity of Water and Steam **Ag 46**
Steam Flooding (BTR) **Ag 57**
Using Steam to Increase Oil Flow (BTR) **N 63**
Steam Coal
An Economic Evaluation of Washed Coal for the Four Corners Generating Station (77-WA/CD-2) (A) **My 101**
Steam Driven Film
Experimental Study of Evaporation and Breakdown of Thin Liquid Films Driven by Shear Stresses (77-WA/HT-7) (A) **Ap 102**
Steam Engine
The Steam Engine of Thomas Newcomen (CB) **Mr 100**
Steam Evaporators
Thermal/Hydraulic Design of Dry-Saturated Steam Evaporators for a Large Fast Breeder Reactor Plant (78-JPGC-NE-7) (A) **D 85**
Steam Generation
Grid Connected Electrical-Thermal (Cogeneration) Energy System for University of California, Davis, California (78-GT-134) (A) **Ag 112**
Steam Generator Loop
A Long-Term System Dynamic Response to a Sodium-Water Reaction in a Typical LMFBR Steam Generator Loop (78-PVP-66) (A) **N 119**
Steam Generator Tubes
Pre-service and In-service Inspection-Research and Development in Support of the Canadian Nuclear Power Program (78-PVP-23) (A) **O 104**
Steam Generators
Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**
Development of LMFBR Steam Generator Leak Protection Systems (77-WA/NE-12) (A) **Je 102**
An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Ji 94**
ERDA's Coal-Oil Mixture Combustion Program (77-WA/Fu-4) (A) **My 93**
Experimental Evaluation of Duplex Tube Heat Transfer Characteristics Stimulating Steam Generator External Heating (77-JPGC-NE-9) (A) **Mr 90**
An Experimental Evaluation of the Flow Distribution in the CRBRP Modular Steam Generator (77-JPGC-NE-12) (A) **Mr 91**
Experimental Studies of Tube Fretting in Steam Generators and Heat Exchangers (78-PVP-22) (A) **O 103**
The Fort St. Vrain Steam Generators (78-NE-7) (A) **N 115**
Investigations into the Sodium-Steam Surface Interaction on a Stagnant Pool (77-JPGC-NE-11) (A) **Mr 91**
Mechanical Analysis of Steam Generator Tube Denting (78-NE-5) (A) **N 115**
Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) (A) **Mr 90**
Performance of the Fort St. Vrain Steam Generators up to 70 Percent Reactor Power During the Start-Up Test Program (78-NE-8) (A) **N 114**
Recent Advances in Evaluating Critical Heat Flux Conditions in LMFBR Steam Generators (77-WA/NE-11) (A) **Je 101**
Steam Generator Design Improvements for the CANDU Wolsung Nuclear Power Plant (78-NE-4) (A) **N 115**
Thermal-Hydraulic Performance of Consolidated Nuclear Steam Generator (CNSG) Module (77-JPGC-NE-2) (A) **Mr 89**
Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**
Steam Injection
Effects of Steam Injection on the Performance of Gas Turbine Power Cycles (78-GT-11) (A) **Ji 87**
Steam Pipes
Dynamic Response of a High-Pressure Steam Pipe in a Fossil Fuel Power Plant (78-PVP-75) (A) **N 120**
Steam Plants
Making Steam Plants Pay (NR) **D 56**
Steam Power
Congeneration of Steam and Electric Power (CB) **D 97**
Steam Power Cycles
A New Approach for Increasing the Thermal Efficiency of Steam Power Cycles (78-JPGC-Pwr-2) (A) **D 82**
Steam Power Plants
Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**
Steam Purity
Steam Purity in German Power Plants: Standards, Operational Data and Effects on Turbine Components (78-JPGC-Pwr-20) (A) **D 84**
Steam Surface Condensers
Steam Surface Condenser Operating and Design Considerations (78-JPGC-Pwr-19) (A) **D 84**
Steam Tables
Steam Tables: Thermodynamic Properties of Water Including Vapor, Liquid, and Solid Phases (CB) **N 127**
Steam Turbine Blading
Long Arc Shrouding—A Reliability Improvement for Unturned Steam Turbine Blading (77-JPGC-Pwr-12) (A) **Mr 89**
Steam Turbine Blading
Long Arc Shrouding—A Reliability Improvement for Unturned Steam Turbine Blading (77-JPGC-Pwr-12) (A) **Mr 89**
Steam Turbines
Avoiding Corrosion of Steam Turbine Components During Erection and Layup (78-JPGC-Pwr-5) (A) **D 83**
Commercial Powerplant Design Development for the Coal Fired Combined Cycle (77-JPGC-GT-6) (A) **Mr 93**
Condenser Studies to Improve Reliability (BTR) **My 59**
Controlled Reluctance Eddy Current Inspection of Steam Turbine Blades (78-JPGC-Pwr-6) (A) **D 83**
Design of a High Efficiency Combined Cycle Electric Power Plant for Low Btu Coal-Gas (78-GT-125) (A) **Ag 111**
Design of a Pressurized Fluid Bed Coal Fired Combined Cycle Electric Power Generation Plant (78-GT-135) (A) **Ag 113**
Designing for Reliability the Large Steam Turbine Mark II Control System (77-JPGC-Pwr-4) (A) **Mr 88**
The Effects of Water Chemistry on the Reliability of Modern Large Steam Turbines (78-JPGC-Pwr-9) (A) **D 83**
Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**
Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal (77-WA/Ener-9) (A) **My 94**
September Statements (C) **F 52**

On-Site Generation of Hydrogen for Generator Cooling (78-GT-196) (A) **S 76**
Steam Turbines for Co-generation Power Plants (78-JPGC-Pwr-16) (A) **D 83**
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) (A) **Ja 110**
The Turbine Fatigue and Creep Evaluator Determination of Cumulative Low-Cycle Fatigue and Creep from Steam Turbine Operational Measurements (77-JPGC-Pwr-3) (A) **Mr 88**

Steam Wagons
The Dudgeon Steam Wagon: ASME's Centennial Gift to the Nation **N 94**

Steamlines
Design and Operation of a Large-Diameter (1.67-m) Steamline (78-PVP-86) (A) **N 122**

Stearman, R. Peristaltic Pumping by a Lateral Bending Wave (77-WA/Bio-12) (A) **Ap 99**

Steel Cutting Tools
Correlation of Tempering Effects With Temperature Distribution in Steel Cutting Tools (77-WA/Prod-16) (A) **Je 104**

Steel Cylinders
A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) (A) **F 132**

Steel Forgings
Factors Affecting The Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) (A) **O 98**

Steel Gears
Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) (A) **F 122**

Steel Industry
Imports—The Machine Tool Industry's Achilles' Heel (NR) **Ja 73**

Steel Piping Operations
Ultrasonic Monitoring of Growth of Part-Through Thickness Defects at 190°C (78-NE-12) (A) **N 116**

Steel Plates
Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) (A) **Ja 101**

Steel Properties
Heat Treatment, Structure, and Properties of Standard and Modified Vasco X-2 Carburizing Grade Gear Steels (77-DET-151) (A) **F 129**

Steel Sheaves
Challenges of Deep-Water Drilling (BTR) **S 49**

Steel Spur Gears
Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) (A) **F 126**

Steel Wire Frames
Minicomputers Turn to Steel Wire Frames (BTR) **Ja 60**

Steels
The Application of Fracture Control Principles to Freight Car Center-Sill Structures (78-RT-7) (A) **O 91**
A Computational Model for Fracture of Pressure Vessel Steel Derived from Experimental Data (78-PVP-92) (A) **N 122**
Design, Manufacture and Safety Aspects of Forged Vessels for High-Pressure Services (78-PVP-72) (A) **N 120**
Development of Sumitomo High Toughness Process (SHT) for Arctic Grade Line Pipes (77-Pet-61) (A) **Ja 104**
Effects of Irradiation on A508 Class 2 and 3 Forging Grade Steels (78-Mat-21) (A) **O 101**
J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) (A) **O 99**
One-Side Galvanized Steel Sheet (IF) **My 64**
The Pitting Performance of Hardened Steels (77-DET-39) (A) **Ja 111**
Preventing Microcracking in High-Carbon Steels (BTR) **Je 58**
Properties of a Special A 387gr5 Steel (77-Pet-59) (A) **Ja 104**
Radiation Effects in Boiling Water Reactor Pressure Vessel Steels (78-Mat-11) (A) **O 99**
Reference Fracture Toughness Curves for Irradiated Pressure Vessel Steels (78-Mat-20) (A) **O 101**
Results of Sulfide Stress Cracking Tests in Different Laboratories on SAE 4135 Steel Modified with 0.75 Percent Mo and 0.035 Percent Cb (77-Pet-48) (A) **Ja 103**
The Rule of Codes, Standards and Regulations in Nuclear Pressure Vessel Surveillance Programs (78-Mat-24) (A) **O 101**
Seamless Rolled Ring Forgings (BTR) **Ag 56**
Shear Fracture Propagation by DCB Testing (77-Pet-32) (A) **Ja 101**
Study on the Resistivity of Various Types of Steels Against Propagating Shear Fracture by Modified West Jefferson Type Burst Test (78-PVP-71) (A) **N 120**

Stellens, J. Appropriate Technology—Past and Future (77-WA/TS-8) (A) **My 99**

Stehling, S. G. Development Testing of Leak Injection Devices for Use in Testing Sodium-Water Leak Detection Modules (77-JPGC-NE-7) (A) **Mr 90**; Investigations into the Sodium-Steam Surface Interaction on a Stagnant Pool (77-JPGC-NE-11) (A) **Mr 91**

Steigelmann, W. H. Solar Economics (C) **My 52**

Stein, R. L. A Lightweight, Positive Pressure Rescue Breathing Apparatus (78-ENAs-35) (A) **D 86**

Stein, T. R. Investigating Combustion Turbine Burner Performance with Coal Derived Liquids Having High Fuel Bound Nitrogen (78-GT-126) (A) **Ag 111**

Steinberg, S. Vibrations of Beams and Plates with Edges Elastically Restrained Against Rotation Carrying Elastically Mounted Masses (77-DET-87) (A) **F 122**

Steele, R. K. Feasibility Study of On-Site Flame Hardening of Rail (78-RT-8) (A) **O 91**

Stensson, G. Load Distribution in Timing Belts (77-DET-100) (A) **F 124**

Stephen, J. D. Development of Structural Design Criteria for Highly Irradiated Core Components (78-PVP-78) (A) **N 121**

Stephens, P. B. Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**

Stephenson, J. G. Train Dynamics Analyzer: A Training Simulator for Locomotive Engineers (77-WA/RT-10) (A) **Mr 85**

Sternlicht, B. Capturing Energy from Industrial Waste Heat **Ag 30**; The Resurrection of the Sterling Engine **O 38**

Stevens-Guille, P. D. Sealing Forces for Leak-Tight Operation of a Self-Energized Pressure Vessel Closure (78-PVP-16) (A) **O 103**

Stevensen, E. N., Jr. Elimination of Branch, Grashof, and Order Defects in Path-Angle Generation and Function Generation Synthesis (78-DET-16) (A) **D 89**

Stewart, J. E. Application of European Radwaste Technology in North America (78-NE-16) (A) **N 115**

Stewart, R. M. Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) (A) **Ja 115**

Stewart, W. B. An Evaluation of Liquid Radioactive Waste Treatment Systems for CANDU-PHW (78-JPGC-NE-17) (A) **D 86**

Stiffened Plates
Forced Response of Stiffened Plates (77-DET-150) (A) **F 129**

Stiffness
The Dynamic Characteristics of O-Rings (77-DET-27) (A) **Ja 110**
Hunting Stability of the Three-Axle Locomotive Truck (78-RT-6) (A) **O 91**
Stiffness of Machine Tool Spindles (77-WA/Prod-42) (A) **Je 108**
Vibration and Noise Reduction of Beams and Plates by Use of Boundary Damping and Stiffness (77-DET-155) (A) **F 129**

Stirling Engine
The Resurrection of the Stirling Engine **O 38**

St-Jacques, R. G. Helium Blistering in Metals (78-Mat-5) (A) **O 99**

Stinson, W. H. On Energy Issues (C) **Mr 47**

Stochastic Simulation
Machining Economics and Tool Life Variation: Part 1—Basic Considerations and their Practical Implications (77-WA/Prod-12) (A) **Je 104**

Stochastic Tool Life
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) (A) **Je 107**

Stockinger, S. Waste Tritium Cleanup for the Tokamak Fusion Test Reactor (TFTR) (78-JPGC-NE-15) (A) **D 86**

Stoddard, F. J. Measurement of Heat-Transfer Rate to a Gas Turbine Stator (78-GT-119) (A) **Ag 110**

Stokes, V. K. On the Dynamic Expansion of a Circular Hole in an Infinite Plate (77-WA/APM-21) (A) **Je 111**

Stone, D. H. The Application of Fracture Control Principles to Freight Car Center-Sill Structures (78-RT-7) (A) **O 91**

Stonesifer, R. B. Computation of Residual Stresses Due to Multipass Welds in Piping Systems (78-PVP-104) (A) **N 124**

Storage Program
Salt Cavern Crude Oil Storage Program (BTR) **N 64**

Storage Systems
Convective Heat Transfer in Porous Media (78-HT-45) (A) **O 96**

Storage Tanks
A Passive Technique for Enhancing Thermal Stratification in Liquid Storage Tanks (78-HT-50) (A) **O 97**
Thermosyphon Analysis of a Thermic Diode Solar Heating System (77-WA/Sol-9) (A) **My 98**

Storms, M. A. Glomar Challenger's Deep Water Reentry Cone/Dual Casing Hanger System (77-Pet-75) (A) **Ja 106**

Storoidal Motion
Storoidal Motion—A New Class of Cam Profiles (78-DET-20) (A) **D 89**

Stowell, G. W. Fast Generation and Manipulation of Curved Surfaces—A Tool for Computer Aided Design (77-DET-106) (A) **F 125**

Strada, J. A. Aeroelastic Stability Analysis of Supersonic Cascades (78-GT-151) (A) **Ag 115**

Straatmann, J. A. Results of Sulfide Stress Cracking Tests in Different Laboratories on SAE 4135 Steel Modified with 0.75 Percent Mo and 0.035 Percent Cb (77-Pet-48) (A) **Ja 103**

Straight Channel
Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (77-WA/HT-4) (A) **Ap 101**

Strain
Uncertainties in Fast Breeder Reactor Fuel Pin Cladding Stress and Strain Calculations (78-PVP-54) (A) **N 118**

Strain Energy
On the Use of Strain Energy Density Fracture Criterion in the Design of Gears Using Finite Element Method (77-DET-158) (A) **F 129**

Strain Energy Release Rates
Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) (A) **Je 110**

Strain Gage Measurements
Synthesis of Blade Flutter Vibratory Patterns Using Stationary Transducers (78-GT-160) (A) **Ag 116**

Strain-Hardening
Effects of Strain-Hardening on Rock/Bit-Tooth Interaction (77-Pet-70) (A) **Ja 105**

Strain Levels
Low-Cycle Cumulative Damage with Two-Strain Repeated Blocks on a Stainless Steel at High Temperature (78-PVP-88) (A) **N 122**

Strain Range
Application of Damage Concepts to Predict Creep-Fatigue Failures (78-PVP-26) (A) **O 104**

Strain Rate
Analytical Experimental Correlation of a Nonlinear System Subjected to a Dynamic Load (78-PVP-37) (A) **O 105**
Shear Fracture Propagation by DCB Testing (77-Pet-32) (A) **Ja 101**

Strain Variation
Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/Prod-29) (A) **Je 107**

Strand, T. Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) (A) **Ag 109**

Strang, J. E. F-18 Air Conditioning System (78-ENAs-23) (A) **N 112**

Stratification Enhancement Technique
A Passive Technique for Enhancing Thermal Stratification in Liquid Storage Tanks (78-HT-50) (A) **O 97**

Stratified Medium
The Near-Field Disturbance Created by a Body in a Stratified Medium With a Free Surface (77-WA/APM-18) (A) **Jl 98**

Stratified Storage
Stratified Versus Well-Mixed Sensible Heat Storage in a Solar Space Heating Application (78-HT-49) (A) **O 98**

Streamline Curvature
The Effects of Streamline Curvature on Reynolds Analogy (77-WA/FE-17) (A) **Ap 95**

Strenkowski, J. S. Transient Response of a Rotor in Damped Bearings (77-DET-21) (A) **Ja 109**

Stress Analysis
Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) (A) **Mr 91**
Analytical and Experimental Stress Analysis of a Cylinder-to-Cylinder Structure (77-PVP-11) (A) **Ja 108**
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) (A) **Mr 92**
Stress Analysis for the Design of Liquid Metal Piping in the

Fast Flux Test Facility (78-PVP-21) (A) **O 103**
Stress Analysis and Maximization of Energy Density for a Magnetically Suspended Flywheel (77-WA/DE-24) (A) **Mr 96**
Stress Analysis and Stress-Intensity Factors for Finite Geometry Solids Containing Rectangular Surface Cracks (77-WA/APM-5) (A) **Jl 97**
Thermal Transient Stress Analysis of Cylinder-to-Cylinder Structures by the Finite Plate Method (78-PVP-76) (A) **N 120**

Stress Applications
Power System Economics: on Selection of Engineering Alternatives (77-JPGC-Pwr-7) (A) **Mr 88**

Stress Calculations
A Proposed Scheme for Computer Aided Design and Manufacture of Radial Turbine Rotors (78-GT-156) (A) **Ag 115**

Stress Components Measurements
An Experimental Investigation of a Three-Dimensional Turbulent Boundary Layer (77-WA/FE-22) (A) **Ap 98**

Stress Conditions
Elastic-Plastic R-Curves (78-Mat-12) (A) **O 99**
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) (A) **Ja 113**

Stress Contours
A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) (A) **Je 104**

Stress Corrosion
Good Breaks! (BTR) **Ag 59**
Stress Corrosion Crack Growth and Fracture Predictions for BWR Piping (78-Mat-23) (A) **O 101**

Stress Cracking Tests
Results of Sulfide Stress Cracking Tests in Different Laboratories on SAE 4135 Steel Modified with 0.75 Percent Mo and 0.035 Percent Cb (77-Pet-48) (A) **Ja 103**

Stress Distribution
Inelastic Stress Distribution in Tubesheet Ligaments Under Thermal and Mechanical Loading (77-JPGC-NE-22) (A) **Mr 91**
Limit Analysis of Hollow Disk Forging Part 2: Lower Bound (77-WA/Prod-3) (A) **My 103**
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) (A) **Mr 95**

Stress Evaluations
Probabilistic Stress Evaluation of Piping Systems Assuming Single Snubber Failures (78-PVP-107) (A) **N 124**

Stress Field
On the Stress Field Due to Initial Strains in a Cuboid Surrounded by an Infinite Elastic Space (77-WA/APM-17) (A) **Jl 98**

Stress Intensity
Application of an Eigenfunction Expansion to the Determination of Stress-Intensity Factors (77-WA/GT-1) (A) **Ap 100**
Determination of Stress Intensification Factors for the Code Qualification of Integrally Reinforced Branch Connections (78-PVP-99) (A) **N 123**
Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**
Embedded Elliptical Crack at a Corner (78-PVP-5) (A) **O 102**
Fatigue Crack Propagation of Short Cracks (78-Mat-7) (A) **O 100**
A Procedure for Estimating the Stress Intensity Factor of a Flattened Surface Crack at a Nozzle Corner (78-PVP-95) (A) **N 123**
Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) (A) **Je 109**
Stress Intensity Factor Calculations for Circular Cracks at the Intersections of Pressurized Cylindrical Shells (78-PVP-24) (A) **O 104**

Stress Limits
Evaluation of the Functional Capability of ASME Section III Class 1, 2 and 3 Piping Components (78-PVP-83) (A) **N 122**

Stress Redistribution
Stress Redistribution for the Multiring Flywheel (77-WA/DE-26) (A) **Mr 96**

Stress Relaxation
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) (A) **Mr 87**

Stress Relief
Feasibility of Local Stress Relieving Close to Main Shell of a Large Vessel (78-NE-2) (A) **N 114**
Feasibility Study of On-Site Flame Hardening of Rail (78-RT-8) (A) **O 91**

Stress Relief Annealing
A Simple Test of the Effectiveness of Stress Relief Annealing Spring Materials (77-WA/DE-21) (A) **Mr 95**

Stress Response Investigations
Stress Response Investigations Related to In-Situ Gasification of Coal (77-Pet-25) (A) **Ja 100**

Stress Singularity
On the Changing Order of Singularity at a Crack Tip (77-WA/APM-15) (A) **Jl 98**

Stress Spectra
Load Sequences for Laboratory Simulation of Flight-by-Flight Stress Spectra (77-WA/DE-25) (A) **Mr 96**

Stress-Strain Behavior
Buckling of Rectangular Cross-Ply Laminated Plates with Nonlinear Stress-Strain Behavior (78-PVP-64) (A) **N 119**
Strength Characterization of Various Silicon Base Turbine Materials (77-WA/GT-4) (A) **Ap 100**

Stress Wave Propagation Calculations
The Effect of Material Constitutive Models on Stress Wave Propagation Calculations (77-WA/Mat-8) (A) **Je 109**

Stresses
Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) (A) **Je 109**
An Analysis of the Propagation of a Brittle Circumferential Crack in a Pipe Subjected to Axial Stresses (78-PVP-101) (A) **N 124**
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part I: Analysis (77-DET-52) (A) **Ja 112**; Part 2: Experimental Investigation (77-DET-53) (A) **Ja 112**
Bevel Gears at 203 m/s (40,000 fpm) (77-DET-178) (A) **F 131**
Computation of Residual Stresses Due to Multipass Welds in Piping Systems (78-PVP-104) (A) **N 124**
The Conflicting Roles of Carbon Tetrachloride as a Boundary Lubricant (77-WA/Prod-7) (A) **Je 104**
Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) (A) **O 99**
Demonstration of Ceramic Design Methodology for a Ceramic Combustor Linear (78-GT-137) (A) **Ag 113**
The Effect of Primary Head Shape on Tubesheet Thickness (78-PVP-30) (A) **O 104**
Experimental Investigation of the Angled Elliptic Notch Problem in Tension (77-WA/APM-6) (A) **Je 111**
Experimental Study of Evaporation and Breakdown of Thin Liquid Films Driven by Shear Stresses (77-WA/HT-7) (A) **Ap 102**
Finite Element Analysis of a Large Ridge Inert Atmosphere Creep Test Specimen (78-PVP-7) (A) **O 102**
Half-Bead Weld Repairs for In-Service Applications (78-PVP-10) (A) **O 102**
The Influence of Drying and Stress on the Permeability of Texas Lignite (77-Pet-26) (A) **Ja 101**
Mechanical and Thermal Stresses in the Volute of a Pump Casing (78-PVP-45) (A) **N 117**
Nonsteady Operational Behavior of Single-Shaft and Two-Shaft Closed-Cycle Gas Turbines (78-GT-15) (A) **Jl 88**
OBE Design Effects on Nuclear Power Plant Pressure Vessel (78-PVP-14) (A) **O 103**
A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) (A) **O 100**
Residual Ductility and Residual Stresses in Formed Heads (77-PVP-13) (A) **Ja 107**
Spring Fatigue Recommended Design Stresses (78-DE-5) (A) **S 73**
Stress at Work (CB) **D 98**
Stresses in Turbine Blades Due to Temperature and Load Variation (78-GT-158) (A) **Ag 115**
Study of Bolted Joint Integrity and Inter-Tube-Pass Leakage in U-Tube Heat Exchangers—Part II: Applications (77-WA/NE-7) (A) **Je 100**
The Theory of Static Loads in Bins (77-WA/APM-1) (A) **Je 111**
Thermal Damage and Rail Load Stresses in a 33-In. Railroad Car Wheel (77-WA/RT-2) (A) **Mr 84**
On Thermal Expansion Induced Stresses in U-Bends of Shell- and Tube-Heat Exchangers (78-JPGC-NE-14) (A) **D 86**
Thermal Stress Effects and Surface Cracking Associated With Laser Use on Human Teeth (77-WA/Bio-3) (A) **Mr 97**; (77-WA/HT-43) (A) **My 100**
Three-Dimensional Elasticity Solution of a Spherical Dome (77-WA/APM-26) (A) **Jl 98**
The Turbine Fatigue and Creep Evaluator Determination of Cumulative Low-Cycle Fatigue and Creep from Steam Turbine Operational Measurements (77-JPGC-Pwr-3) (A) **Mr 88**
Uncertainties in Fast Breeder Reactor Fuel Pin Cladding Stress and Strain Calculations (78-PVP-54) (A) **N 118**
On the Use of Strain Energy Density Fracture Criterion in the Design of Gears Using Finite Element Method (77-DET-157) (A) **F 129**
Weight Minimization of a Speed Reducer (77-DET-163) (A) **F 130**

Stressing
Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) (A) **F 124**

Stribley, R. F. Physiological Requirements for Design of Environmental Control Systems: Control of Heat Stress in High-Performance Aircraft (78-ENAs-22) (A) **N 113**

String Windings
New Rolling Key Drive for Light Torque Applications (BTR) **Ag 62**

Strip Forging
Disk and Strip Forging With Side-surface Foldover: Part 1—Velocity Field and Upper Bound Analysis (77-WA/Prod-36) (A) **Je 107**; Part 2—Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) (A) **Je 107**

Strip Heaters
Taking Advantage of the Beast (C) **Mr 47**

Strip Rolling
Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) (A) **Je 107**

Strong, A. B. The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (A) **Ap 93**

Strong, R. E. Combined Cycles for Operation on Coal Fuels with High-Temperature Combustion Turbines (77-WA/Ener-14) (A) **My 95**

Strong, R. T. Joint Displacements in Linkage Synthesis Solutions (78-DET-43) (A) **D 92**

Strother, J. R. Description and Performance of A 7000-Shp Gas Turbine Engine (78-GT-188) (A) **S 76**

Structural Analysis
Fracture Discontinuities and Structural Analysis in Resource Recovery Endeavors (77-Pet-32) (A) **Ja 101**
Modal Superposition Method for Computationally Economical Nonlinear Structur Analysis (78-PVP-70) (A) **N 120**
The Plastic Methods of Structural Analysis (CB) **Je 113**
Structural Analysis of Kinematic Chains and Mechanisms Based on Matrix Representation (78-DET-29) (A) **D 90**
Time-Phased Development Methodology-The Key For Reliable Engines In Future Military Aircraft Weapons Systems (78-GT-167) (A) **Ag 116**

Structural Design
The Design and Development of Heated, Impact Resistant Windshields for Locomotives (78-RT-5) (A) **O 90**
Design of an Elastic Wind Tunnel Model of a Tall Office Building Using a Finite Element Computer Code (77-WA/DE-6) (A) **Mr 93**
Intermediate Heat Exchanger Development for the Clinch River Breeder Reactor Plant (77-WA/NE-10) (A) **Je 101**
The Master Builders: A History of Structural and Environmental Design from Ancient Egypt to the 19th Century (CB) **My 106**
Structural Design for a 10-GWh SMES Vacuum Vessel (78-PVP-46) (A) **N 117**
Structural Design Optimization of Once-Through Type Heat Exchangers (77-JPGC-NE-3) (A) **Mr 89**
Structural Design of Piping for CANDU Nuclear Stations (78-NE-1) (A) **N 114**
Structural and Mechanical Design of Tokamaks (77-WA/NE-2) (A) **Je 100**
Study of Bolted Joint Integrity and Inter-Tube-Pass Leakage in U-Tube Heat Exchangers—Part II: Applications (77-WA/NE-7) (A) **Je 100**
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) (A) **Mr 91**

Structural Design Criteria
Development of Structural Design Criteria for Highly Irradiated Core Components (78-PVP-78) (A) **N 121**

Structural Members
The Riccati Transfer Matrix Method (77-DET-32) (A) **Ja 110**

Structural Model
Non-Linear Lateral Mechanical Response of Pressurized

Water Reactor Fuel Assemblies (77-WA/DE-18) (A) **Mr 95**

Structural Parameters
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/Prod-1) (A) **My 102**

Structural Performance
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) (A) **Ap 92**

Structural Reflectors
Metallurgical Causes of Difficulties with Ultrasonic Inspection of Austenitic Welds (78-PVP-8) (A) **O 102**

Structural Reinforcement
Modeling and Analysis for Seismic Adequacy in Air Handling Unit Enclosures—The Effects of Structural Reinforcement (77-DET-136) (A) **F 127**

Structural Synthesis
Generalized Force Curve Shapes for Structural Synthesis of Joint Torque Systems to Produce a Desired Dynamic Motion Time Response of a 4R-Bar (78-DET-39) (A) **D 92**

Structural Systems
Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) (A) **Ja 111**

Structural Vibrations
Determination of Dynamic Characteristics of an Impact Forming Machine Structure (77-WA/Prod-5) (A) **My 102**

Structural Welds
An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) (A) **O 101**

Structure Behavior
Analysis of Closely Spaced Double Tubesheets Under Mechanical and Thermal Loadings (77-JPGC-NE-21) (A) **Mr 92**

Structure Optimization
Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) (A) **Ja 111**

Stub Cantilever Plate
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-46) (A) **Ja 112**

Stubley, P. H. Design and Analysis of a Compact Array of (Class 1) Nuclear Piping for Large Anchor Movements and Seismic Supports (78-PVP-29) (A) **O 104**

Stuchly, J. The Internally Insulated Liquid Natural Gas Pipeline for Arctic Gas Recovery (77-WA/HT-17) (A) **Ap 103**

Student Design Competition
Design Competition (EN) **F 69**
Enter SCORE's Energy Efficient Vehicles Competition (EN) **Mr 66**
Student Design Competition for 5th Annual CSDD (EN) **Mr 67**
Wanted: Student Design Projects for '78 DET Competition **Jl 76**

Student Design Program
Designing for Home Energy Conservation (EN) **Ag 76**
Student DOE Program (EN) **S 61**

Student Engineering Design Competition
Design Competition Brochure (EN) **My 75**

Student Interns
ASME Student Interns Reflect on Washington, D.C. *(review)* **N 104**
What Student Interns Learn—And Teach (WW) **Ag 80**

Student Invention
WPI Student Designs Typewriter to Aid Handicapped (EN) **My 75**

Student Section
Cooper Union Student Section Meeting (EN) **Mr 67**

Student Opportunities
Student Research at ORNL (EN) **Je 76**

Student Science Training Program
NSF Student Science Training Program (EN) **Jl 63**

Student Training Programs
High School Academies Program Singled Out by White House (EN) **N 81**
Training Programs Needed (EN) **N 80**

Sturge, D. P. Compressible Flow in a Centrifugal Impeller with Separation: A Two-Dimensional Calculation Method (77-WA/FE-8) (A) **Ap 94**

Sturges, D. J. Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) (A) **Ja 113**

Submarine Observation Missions
Two-Man Submarine (BTR) **O 55**

Subner, O. H. How to Design and Utilize Flexible Shafts in Products (78-DE-22) (A) **S 73**

Subsonic Aircraft
Development of an Inlet for a Tilt Nacelle Subsonic V/STOL Aircraft (78-GT-121) (A) **Ag 111**
Propulsion System Considerations for the Subsonic V/STOL (78-GT-57) (A) **Jl 94**

Subsonic Flow
Subsonic Compressible Conical Diffuser Flow Analysis (77-WA/FE-2) (A) **Ap 93**

Substructures
Dynamic Analysis of Piping Systems Using Substructure (77-DET-144) (A) **F 128**

Substructuring
An Application of the Substructuring Method to Heat Transfer (77-PVP-32) (A) **Ja 108**

Subsurface Imagery
Subsurface "Radar" Camera (BTR) **Je 54**

Subsystem Development
Active Thermal Control Subsystem Development (78-ENAs-6) (A) **N 110**

Suciu, S. N. Elections to Fellow Grade **N 109**

Sugiyama, G. S. "Big Bang Was a 'Cool' Show" (C) **My 51**

Suh, N. P. On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/Prod-14) (A) **Je 104**

Sulfide Stress Cracking Tests
Results of Sulfide Stress Cracking Tests in Different Laboratories on SAE 4135 Steel Modified with 0.75 Percent Mo and 0.035 Percent Cb (77-Pet-48) (A) **Ja 103**

Sulfur Dioxide
Ambient Ground-Level Sulfur Dioxide Concentrations in the Vicinity of a Multiple Stack Power Plant During and After Operation (77-WA/APC-4) (A) **My 102**
The Effectiveness of Flue Gas Desulfurization Systems in Reducing Power Plant Ambient Air Quality Impacts (77-JPGC-Pwr-6) (A) **Mr 88**
Fume Formation in Ammonia Scrubbers (77-WA/APC-2) (A) **My 101**
TVA's Cocurrent Scrubber Evaluation (77-WA/APC-8) (A) **My 102**

Sulfur Dioxide Scrubbers
Bigger and Better Scrubbers (ES) **Jl 23**

Sulfur Distribution
The Impact on Power Plant Design of Sulfur Distribution in Coal (78-JPGC-Pwr-13) (A) **D 83**

Sulfur Oxide
A 1977 Approach to Sulfur Oxide Emissions (77-JPGC-Pwr-1) (A) **Mr 88**
A British Approach to Sulfur Oxide Emissions **Ag 42**
Pollution Solution Questioned (C) **N 56**

Sulfur Recovery
The Latest on Sulfur (ES) **D 15**

Sulfur Removal
Microbial Desulfurization of Coal (BTR) **D 46**

Sullivan, D. F. The Forced Vibration of a Three-Layer Damped Circular Ring (77-DET-154) (A) **F 129**

Sun, C. T. Dynamic Response of a High-Pressure Steam Pipe in a Fossil Fuel Power Plant (78-PVP-75) (A) **N 120**

Sun Design
A Basis for Sun Design (CB) **Jl 100**

Sun Power
Of Lasers, Fusion, and Sun Power (ES) **O 47**
Sun Power for the Pumps of Africa (BTR) **O 53**

Sundquist, B. E. Application of LIFE Transient Codes to Experiment and Core Design (78-PVP-51) (A) **N 118**

Superconducting Coils
Experiments on Buckling and Vibration of Superconducting Coils (77-WA/APM-28) (A) **Jl 99**

Superconducting Computers
Superconducting Computers (BTR) **Ag 63**

Superconducting Field Coils
A Pulsed Homopolar Machine with Superconducting Field Coils (77-WA/HT-35) (A) **My 99**

Superconducting Generator
20-MVA Supercold Generator (BTR) **Ap 58**
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) (A) **Mr 95**

Superconduction
Heat Transfer from Aluminum to HE II—Application to Superconductive Magnetic Energy Storage (78-HT-51) (A) **O 97**

Superconductors
A Promising New Superconductor (ES) **Jl 23**
Superconductor Progress Required for Fusion (IF) **Ja 68**

Supersonic Aircraft
Advanced Environmental Cooling Concepts for Supersonic Aircraft (78-ENAs-21) (A) **N 112**

Supersonic Cascades
Aeroelastic Stability Analysis of Supersonic Cascades (78-GT-151) (A) **Ag 115**

Supersonic Centrifugal Impeller
Experimental Study on Flow in a Supersonic Centrifugal Impeller (78-GT-2) (A) **Jl 87**

Supersonic Flow
Interacting Turbulent Boundary Layer Over a Wavy Wall (77-WA/HT-28) (A) **Ap 104**

Supersonic Two-Dimensional Cascade
A Rational Analysis of Periodic Flow Perturbation in Supersonic Two-Dimensional Cascade (78-GT-176) (A) **S 74**

Support Systems
Higher Fuel Efficiency for EMD Diesel Locomotives (78-RT-4) (A) **O 90**
The Spacelab Flight Unit Environmental Control/Life Support System (78-ENAs-14) (A) **N 111**
Support System Considerations for STS Biological Investigations (78-ENAs-37) (A) **N 114**

Supraphysiological Temperatures
Kinetics of Thermal Injury of Cell Populations Exposed to Supraphysiological Temperatures (77-WA/HT-44) (A) **My 100**

Suresh, S. Vibration of Cantilever Sandwich Beams (78-DE-20) (A) **O 92**

Surface Analysis
Automating Mechanical Design Procedures (BTR) **F 54**

Surface Condensers
The Surface Condenser as an Environmental Barrier (78-JPGC-Pwr-17) (A) **D 83**

Sutherland, G. H. On Certain Least-Squares Synthesis Methods Misconceptions (78-DET-11) (A) **D 88**

Surface-Controlled Subsurface Safety Valves
Design Considerations for Surface-Controlled Subsurface Safety Valve Systems (77-Pet-45) (A) **Ja 103**

Surface Cooling
Approximate Analysis of Heat Transfer from the Surface of a Wet Finned Heat Exchanger (78-HT-26) (A) **O 94**

Surface Cracking
Thermal Stress Effects and Surface Cracking Associated With Laser Use on Human Teeth (77-WA/Bio-3) (A) **Mr 97**; (77-WA/HT-43) (A) **My 100**

Surface Cracks
A Procedure for Estimating the Stress Intensity Factor of a Flattened Surface Crack at a Nozzle Corner (78-PVP-95) (A) **N 123**
Stress Analysis and Stress-Intensity Factors for Finite Geometry Solids Containing Rectangular Surface Cracks (77-WA/APM-5) (A) **Jl 97**

Surface Curvature
Laminar, Transitional, and/or Turbulent Three-Dimensional Boundary Layers over Arbitrary Blunt-Nosed Bodies Including Surface Curvature Effects (78-HT-23) (A) **O 94**
Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) (A) **Ap 94**

Surface Deformation
Determining the Coefficient of Friction for Rolling Disks (77-Lub-11) (A) **Mr 85**

Surface Distribution
Heat Transfer From Axisymmetric Sources at the Surface of a Rotating Disk (78-GT-141) (A) **Ag 114**

Surface Durability
On the Design of Surface Durability of Rolling-Sliding Contact Surface (77-DET-115) (A) **F 125**
On the Surface Durability of Gears (77-DET-58) (A) **Ja 113**

Surface Erosion
Helium Blistering in Metals (78-Mat-5) (A) **O 99**

Surface Fatigue
Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) (A) **Ja 112**

Surface Grooves
Flat-Plate Heat Pipe (BTR) **O 51**

Surface Hardened Rollers
Difference Between Rolling Fatigue Behaviors of Surface Hardened and of Soft Steel Rollers (77-DET-57) (A) **Ja 112**

Surface Heat Flux
Analysis of Mixed Convection About a Sphere with Uniform Surface Heat Flux (77-WA/HT-1) (A) **Ap 101**
Application of the Finite Element Method to the Inverse Heat Conduction Problems (77-WA/TM-4) (A) **My 96**
Radiative Transfer in Hartmann MHD Flow (78-HT-18)

(A) **O 94**

Surface Heat Loss
Approximate Thawing of Permafrost Beneath a Buried Pipe (77-WA/HT-18) (A) **Ap 103**

Surface Loss Wear
Radioactive Wear Measuring (IF) **Je 65**

Surface Lubricant Interaction
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) (A) **Mr 87**

Surface Measurements
Rear Surface Noncontact Measurements of Laser Target Temperatures (78-HT-58) (A) **O 98**

Surface Mine
An Economic Evaluation of Washed Coal for the Four Corners Generating Station (77-WA/CD-2) (A) **My 101**

Surface Movement
Noise Radiated from Hydraulic Circuits (78-DE-23) (A) **O 92**

Surface Pressure
A High-Order Theory of Plate Deformation—Part 1: Homogeneous Plates (77-WA/APM-23) (A) **Jl 98**

Surface Profile Signals
Asperity Interactions in EHD Contacts (77-Lub-19) (A) **Mr 86**
Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) (A) **Mr 86**

Surface Properties
Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) (A) **Ja 113**

Surface Roughness
An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) (A) **Mr 86**
Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/Prod-27) (A) **Je 106**
Two Temperature Gradients Model for Friction Failure (77-Lub-28) (A) **Mr 87**

Surface Shear Stress
Laminar Shear Layer Due to a Semi-Infinite Thin Flat Plate Oscillating with Zero Mean Velocity (77-WA/FE-16) (A) **Ap 95**

Surface Stresses
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) (A) **Je 106**

Surface Temperatures
An Iterative Approach to the Solution of Inverse Heat Conduction Problems (77-WA/TM-2) (A) **My 95**
A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) (A) **F 132**
Profile Loss Characteristics and Heat Transfer of Full Coverage Film-Cooled Blading (78-GT-98) (A) **Ag 108**
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) (A) **Jl 89**
Spectral Analogy Between Temperature and Velocity Fluctuations in Various Turbulent Flows (78-HT-2) (A) **O 92**
Thermal Development of Flow in the Entrance Region of a Channel with Periodic Boundary Conditions (78-HT-27) (A) **O 95**
Thermal Response of Slabs Subjected to Nonsymmetric Convective Heat Transfer (78-DE-8) (A) **S 72**
Turbulent Natural Convection in a Horizontal Fluid Layer with Time Dependent Volumetric Energy Sources (78-HT-6) (A) **O 92**

Surface Thawing
A Numerical Study of the Surface Thawing of Coal Cars (77-WA/HT-33) (A) **Ap 105**

Surfaces
Fast Generation and Manipulation of Curved Surfaces—A Tool for Computer Aided Design (77-DET-106) (A) **F 125**

Surge Control
Reasons for centrifugal Compressor Surging and Surge Control (78-GT-28) (A) **Jl 90**

Surge Measurements
First-Order Pump Surge Behavior (77-WA/FE-12) (A) **Ap 95**

Surjaatmadja, J. B. Output Circuit Selection and Output Feedback in Fluid Logic Synthesis (77-WA/Flcs-11) (A) **Ap 98**

Surveillance Capsule Results
Surveillance Capsule Results from the Oconee Class Reactors (78-Mat-22) (A) **O 101**

Surveillance Programs
The Rule of Codes, Standards and Regulations in Nuclear Pressure Vessel Surveillance Programs (78-Mat-24) (A) **O 101**

Survey Committee Report
Progress in Railway Mechanical Engineering (1976-1977 Report of Survey Committee) Cars and Equipment (77-WA/RT-5) (A) **Mr 85**
Progress in Railway Mechanical Engineering 1976-1977 Report of Survey Committee Locomotives (77-WA/RT-12) (A) **Mr 85**

Suspension Bridge
On the Flutter Instability of a Suspension Bridge Using the Finite Element Method (77-DET-140) (A) **F 128**

Suspension Damping
Hunting Stability of the Three-Axle Locomotive Truck (78-RT-6) (A) **O 91**

Suspensions
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) (A) **Ja 108**
Ride Quality of Autorack Cars (77-WA/RT-7) (A) **Mr 85**

Sutherland, W. H. Uncertainties in Fast Breeder Reactor Fuel Pin Cladding Stress and Strain Calculations (78-PVP-54) (A) **N 118**

Sution, T. Influence of Static and Dynamic Asymmetric Loading Conditions on Silo Design (77-DET-145) (A) **F 128**

Suydam, C. D., Jr. An Economic Evaluation of Washed Coal for the Four Corners Generating Station (77-WA/CD-2) (A) **My 101**

Sviatoslavsky, I. N. Structural and Mechanical Design of Tokamaks (77-WA/NE-2) (A) **Je 100**

Swaminadham, M. Study of the Vibrations of Rotating Blades (77-DET-147) (A) **F 129**

Swanson, C. Experiments on Buckling and Vibration of Superconducting Coils (77-WA/APM-28) (A) **Jl 99**

Swanson, L. L. Performance of the Fort St. Vrain Steam Generators up to 70 Percent Reactor Power During the Start-Up Test Program (78-NE-8) (A) **N 114**

Swartz, H. M. Occupational Exposure Measurement Program at Millstone-2 (77-JPGC-NE-16) (A) **Mr 91**

Swearingen, J. S. The Application of Turboexpanders for Energy Conservation (77-PET-17) (A) **Ja 100**. Turboexpanders for Energy Conservation **S 34**

Sweeney, W. E. Oxygen: 2000 Tons/Day **Ja 38**

Sweet, L. M. Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) (A) **Je 102**

Swift, T. Fracture Analysis of the Adhesively Bonded Cracked Panels (77-WA/Mat-2) (A) **Je 108**

Swirling Flows
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) (A) **Ag 109**

Switches
Hall-Effect Toggle Switch (BTR) **Ap 55**

Symmetrical Algebraic Motions
Symmetrical Algebraic Motions in the Plane (78-DET-40) (A) **D 92**

Symmetrical Blades
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) (A) **Ja 114**

Symmons, W. R. Seismic Qualification Testing for Shutoff Mechanism for CANDU Reactor (78-PVP-41) (A) **N 117**

Synchronous Generators
A Helium Cooling System for Large Superconducting A.C. Generators (77-WA/HT-36) (A) **Ap 105**

Synchronous Motor Drives
Coupling Selection for Synchronous Motor Drive System (77-DET-131) (A) **F 127**

Synchronous Motor Startup
Torsional Response of Compressor Shaft Systems During Synchronous Motor Startup. Part I—Analytical Model (77-PET-49) (A) **Ja 103**; Part II—Field Measurement Techniques (77-Pet-60) (A) **Ja 104**; Part III—Abnormal Motor Conditions (77-Pet-56) (A) **Ja 104**

Synthesis Procedures
On the Kinematic and Dynamic Synthesis of a Variable-Speed Drive (77-DET-124) (A) **F 126**

Synthesis Techniques
On Certain Least-Squares Synthesis Methods Misconceptions (78-DET-11) (A) **D 88**

Synthetic Fuels
Funding Synthetic Fuel Programs (ES) **Ap 20**
Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal (77-WA/Ener-9) (A) **My 94**
Synthetic Fuels Derived from Coal for Marine Applications (78-GT-20) (A) **Jl 88**

Synthetic Gas
Advanced Coal Technologies (ES) **Ap 21**

Synthetic Liquid Fuels
Demonstration at Con Ed (ES) **D 15**

System Development
Time-Phased Development Methodology-The Key For Reliable Engines in Future Military Aircraft Weapons Systems (78-GT-167) (A) **Ag 116**

System Reliability
Human Performance Reliability—Its Measurement and Impact on System Reliability (78-DE-17) (A) **S 74**

Systems Acquisition
USS Oliver Hazard Perry (FFG-7) Guided Missile Frigate Propulsion System Land Based Test Site Operational Experience (78-GT-150) (A) **Ag 115**

Szewalski, R. A New Approach for Increasing the Thermal Efficiency of Steam Power Cycles (78-JPGC-Pwr-2) (A) **D 82**

T

Taal, M. A New Interpretation for the Dynamic Phenomena Associated with Geneva Mechanisms (78-DET-38) (A) **D 91**

Tabakoff, W. Erosion Study in Turbomachinery Affected by Coal Ash Particles (78-GT-136) (A) **Ag 113**. A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (78-WA/FE-4) (A) **Ap 94**

Tabi, R. Effect of Transverse Shearing Deformations on the Coupled Twist-Bending of Curved Beams (78-PVP-102) (A) **N 124**

Tableriou, J. P. Determination of Stress Intensification Factors for the Code Qualification of Integrally Reinforced Branch Connections (78-PVP-99) (A) **N 123**

Taborek, J. Critical Review of Correlations for Predicting Two-Phase Flow Pressure Drop Across Tube Banks (77-WA/HT-23) (A) **Ap 104**

Tabulation
Questionable Quads (C) **Je 50**

Tacheny, J. Rapid Algorithms for Kinematic and Dynamic Analysis of Planar Rigid Linkages with Revolute Joints (78-DET-64) (A) **D 94**

Taft, C. K. The Stability of the Three-Way Underlapped Hydraulic Spool Servovalve (77-WA/Flcs-9) (A) **Ap 98**

Taha, M. M. A. The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) (A) **F 124**

Taishoff, H. A. Patent Issue Issue in May Issue (C) **Ag 49**

Takahara, K. Cooling Characteristics of Film Cooled Turbine Vane Having Multi-Row of Ejection Holes (78-GT-21) (A) **Jl 89**; Film Cooling Effectiveness for Injection From Multirow Holes (78-GT-32) (A) **Jl 90**

Takahashi, Y. Deterministic Disturbance Rejection in Linear Identification (77-WA/Aut-1) (A) **Je 102**. The Future for M.E.'s—Micros and Control **O 26**

Takase, H. An Analysis of Nonsimilar Boundary Layer Containing Liquid-Droplets Over a Heated Circular Cylinder (78-HT-20) (A) **O 94**

Takeda, R. Current Meter Corrections for Turbulence (77-WA/FM-3) (A) **Ap 100**

Takemoto, M. An Analytical Method for Fixed Tubesheet Heat Exchangers and Its Experimental Verification (78-PVP-77) (A) **N 120**

Takeuchi, I. Study on the Resistivity of Various Types of Steels Against Propagating Shear Fracture by Modified West Jefferson Type Burst Test (78-PVP-71) (A) **N 120**

Talapatra, D. C. Application of a Finite Element Computer Program for Investigating Failure Mechanisms in Military Ammunition (77-WA/DE-20) (A) **Mr 96**

Talbert, W. M. Second-Generation Integrated Coal Gasification/Combined-Cycle Power System (78-GT-14) (A) **Jl 88**

Talbot, J. E. Powerplant Integration—the Application of Current Experience to Future Developments (78-GT-113) (A) **Ag 109**

Talke, R. E. Review of Wear Problems in the Computer Industry (77-Lub-4) (A) **F 132**

Tall, W. A. Application of Nonseries Airfoil Design Technology to Highly Loaded Turbine Exit Guide Vanes

(78-GT-108) (A) **Ag 109**

Tail Structures
Alternative Tuned Absorbers for Steady-State Vibration Control of Tail Structures (77-DET-84) (A) **Ja 115**

Talilan, T. E. Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) (A) **F 132**

Talwar, R. A Two-Dimensional Numerical Solution to Freezing/Melting in Cylindrical Coordinates (77-WA/HT-11) (A) **Ap 102**

Tan, C. S. Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) (A) **Ag 105**

Tanaka, K. Manufacturing Method of Large-Size Marine High-Pressure Gears (77-DET-35) (A) **Ja 110**

Tanaka, S. Super-Precision Single-Flank Gear Testing Machine (77-DET-118) (A) **F 126**

Tanaka, T. Development of Sumitomo High Toughness Process (SHT) for Arctic Grade Line Pipes (77-Pet-61) (A) **Ja 104**; An Experimental Study of Diagonal Flow Propeller Pump: Design Performance with Various Types of Blading (77-WA/FE-9) (A) **Ap 94**

Tandberg, R. E. Effects of Variation in Velocity Profiles on a Simulated Submarine Pipeline (77-WA/Oce-4) (A) **Ap 92**

Tangent-Line Envelope
Higher Order, Planar Tangent-Line Envelope Curvature Theory (78-DET-21) (A) **D 89**

Tangential Slot injection
Calculation of Turbulent Boundary Layers with Tangential Slot Injection (77-WA/HT-29) (A) **Ap 104**

Tank, J. Design Consideration for Dry Ice Garments (78-ENAs-32) (A) **N 113**

Tao, D. C. Technology Transfer in the Design of Adjustable Linkages (78-DET-67) (A) **D 94**

Tapered Roller-Bearings
Lubrication of High-Speed Large Bore Tapered-Roller Beanngs (77-Lub-13) (A) **F 133**

Taping Machine
Computer-Run Taping Machine for Generator Coils (BTR) **O 50**

Target Spotting
Deadly Precision with Laser Weapon System (BTR) **N 63**

Tayler, C. A. M. Marine Gas Turbine Inlet and Exhaust Systems for the R.N. (78-GT-190) (A) **S 75**

Taylor, C. M. The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearing (77-Lub-8) (A) **F 133**

Taylor, D. W. Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) (A) **Je 110**

Taylor, J. G. Design Considerations for Surface-Controlled Subsurface Safety Valve Systems (77-Pet-45) (A) **Ja 103**

Tax Benefits
Tax Benefits from the Expenses Associated with Professional Organizations (PS) **D 65**

Tax Exemptions
Don't Tax the Independents (ES) **Ja 19**

Tax Loopholes
Loophole Logic? (WW) **My 78**

Taxing Problems
Tackling Taxing Problems (C) **N 56**

Teale, J. L. Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) (A) **Mr 86**

Team Development Program
Team Building: Issues and Alternatives (CB) **N 126**

Techapatanarat, P. Design Considerations for Dry Ice Garments (78-ENAs-32) (A) **N 113**

Technical Assistance
Battelle in Texas (ES) **S 21**

Technical Breakthrough
Data Link Uses Fiber Optic Cable (BTR) **O 49**

Technical Data Storage
Gathering Technical Data: A New Approach (NR) **Mr 62**

Technical Experiments
Experiments Selected for 1980 Shuttle Flight (BTR) **Ap 56**

Technical Innovation
Technical Innovation USA **N 22**

Technical Report Standards
Technical Report Standards: How to Prepare and Write Effective Technical Reports (CB) **D 96**

Technical Services
Formulating an International Contract for Engineering and Technical Services (77-WA/Mgt-4) (A) **My 96**

Technical Specification Aspects
Better Precipitator Specs (ES) **Mr 18**

Technical Support Service
NASA's Library for Lease (TL) **Ag 118**

Technological Society
Change: The Grass Roots of a Technological Society **My 81**

Technology
Application of Nonseries Airfoil Design Technology to Highly Loaded Turbine Exit Guide Vanes (78-GT-108) (A) **Ag 109**
Appropriate Technology for Developed Countries (77-WA/TS-4) (A) **My 98**
Appropriate Technology—Past and Future (77-WA/TS-8) (A) **My 99**
The Atomic Power Insurance Act Violates The Constitution of The United States (77-WA/TS-5) (A) **My 98**
Conference Stresses Practical Application of Computers (NR) **My 68**
Development of a Water-Cooled Gas Turbine (78-GT-72) (A) **Jl 96**
Edison Centennial Symposium (NR) **N 76**
Effective Technology Transfer—From Laboratory to Production Line **Ap 32**
The Foundations of Appropriate Technology: Values, Technology, and Future Reality (77-WA/TS-7) (A) **My 99**
GDR Unveils its Technology (NB) **Ag 74**
The Impact of the Presidency on Technology: The Case of Nuclear Energy **Je 20**
Improving U.S. Productivity. Part 3 - Methodologies for Boosting Productivity **N 47**
King of the Mountain—Are We Still Playing the Game? (WW) **Jl 66**
Managing the Flow of Technology (CB) **F 134**
New Directions in Engineering Education Suggestions for Developed Countries (77-WA/TS-6) (A) **My 99**
Technology, the University and the Community: A Study of the Regional Role of Engineering Colleges (CB) **Ja 116**
Technology Will Tell (C) **Ag 53**

Technology and Society
An Analysis of ERDA's National Energy Plan (77-WA/TS-2) (A) **My 98**
Appropriate Technology for Developed Countries (77-WA/TS-4) (A) **My 98**
Appropriate Technology—Past and Future (77-WA/TS-8) (A) **My 99**
The Atomic Power Insurance Act Violates the Constitution of The United States (77-WA/TS-5) (A) **My 98**
A Call for a Technological High Command **Jl 68**
The Evolution of Conservation as a Key Element of National Energy Policy (77-WA/TS-3) (A) **My 98**
The Foundations of Appropriate Technology: Values, Technology, and Future Reality (77-WA/TS-7) (A) **My 99**
New Directions in Engineering Education Suggestions for Developed Countries (77-WA/TS-6) (A) **My 99**
Nuclear Proliferation and Nuclear Power (77-WA/TS-1) (A) **My 98**
A Successful Technology Expands Application **Je 86**

Technology Transfer
The Future of Science and Technology Policymaking (NR) **Ja 75**
Industry and the Developing Countries **Ap 80**
Technology Transfer in the Design of Adjustable Linkages (78-DET-67) (A) **D 94**
Technology Transfer in the Determination of Torque Characteristics of Instrument Ball Bearings at High Speeds with Radial and Axial Loads (78-DET-69) (A) **D 94**
Transferring Technology to Solve Energy Problems (78-DET-76) (A) **D 95**

Teeth
Thermal Stress Effects and Surface Cracking Associated With Laser Use on Human Teeth (77-WA/Bio-3) (A) **Mr 97**

Telecommunications
Future Developments in Telecommunications (CB) **Je 113**
Lightwave Communications (BTR) **Ap 57**

Telemetry Measurements
Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**

Telemetry System
Telemetry for Rotating Measurements on Turbomachinery (78-GT-105) (A) **Ag 108**

Telephone Lines
Blunting the Bite on Ma Bell (BTR) **N 69**

Telescopes
Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) (A) **F 131**

Tell, E. N. Life Support Systems for Biological Specimens in the Shuttle/Spacelab (78-ENAs-38) (A) **N 114**

Tell, N. E. Kinetics of Thermal Injury of Cell Populations Exposed to Supraphysiological Temperatures (77-WA/HT-44) (A) **My 100**

Temperature
Stress Response Investigations Related to In-Situ Gasification of Coal (77-Pet-25) (A) **Ja 101**

Temperature Changes
The Influence of Material Variability on the Predicted Environmental Behavior of Composite Materials (77-WA/Mat-9) (A) **Je 109**

Temperature Dependent Viscosity
Steady Pressure Gradient Assisted Plane Couette Flow with Temperature Dependent Viscosity (78-HT-28) (A) **O 95**

Temperature Distribution
Analytical Prediction of Three-Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) (A) **Je 104**
Application of the Finite Element Method to the Inverse Heat Conduction Problems (77-WA/TM-4) (A) **My 96**
Correlation of Tempering Effects with Temperature Distribution in Steel Cutting Tools (77-WA/Prod-16) (A) **Je 104**
Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/Prod-22) (A) **Je 105**
Film Cooling Effectiveness for Injection From Multirow Holes (78-GT-32) (A) **Jl 90**
Lubrication of High-Speed Large Bore Tapered-Roller Bearings (77-Lub-13) (A) **F 133**
Measurements of Temperature Distribution at Electrosurgical Dispersive Electrode Sites (77-WA/HT-47) (A) **My 100**
Model for Radiation Diagnostics in Turbulent Arcs (78-HT-13) (A) **O 93**
Perturbation Solutions to Phase Change Problem Subject to Convection and Radiation (77-WA/HT-16) (A) **Ap 102**
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) (A) **O 101**
Well-Hole Temperature Distribution in the Presence of Aquifers—A Parametric Study (77-Pet-76) (A) **Ja 106**

Temperature Distributions
Effect of Mainstream Variables on Jets Issuing From a Row of Inclined Round Holes (78-GT-138) (A) **Ag 113**
Heated Three-Dimensional Turbulent Jets (77-WA/HT-27) (A) **Ap 104**
Thermal Response of Slabs Subjected to Nonsymmetric Convective Heat Transfer (78-DE-8) (A) **S 72**

Temperature Field
Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (77-WA/HT-4) (A) **Ap 101**
Heat Transfer in Lead-Acid Batteries (78-HT-52) (A) **O 97**

Temperature Fluctuations
On Prediction and Unified Correlation for Decay of Vertical Buoyant Jets (78-HT-21) (A) **O 94**
Spectral Analogy Between Temperature and Velocity Fluctuations in Various Turbulent Flows (78-HT-2) (A) **O 92**
Turbulence Scales in a Pipe Flow with a Slightly Heated Wall (78-HT-4) (A) **O 92**

Temperature Gradient
Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) (A) **Ap 101**

Temperature Gradients
Two Temperature Gradients Model for Friction Failure (77-Lub-28) (A) **Mr 87**

Temperature Measurement
Application of the Finite Element Method to the Inverse Heat Conduction Problems (77-WA/TM-4) (A) **My 96**
Heat Transfer Distribution on Annular Fins (78-HT-30) (A) **O 96**
An Iterative Approach to the Solution of Inverse Heat Conduction Problems (77-WA/TM-2) (A) **My 95**
Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) (A) **My 96**
A Simple Method for Measuring and Monitoring Thermal Properties in Tissues (77-WA/HT-42) (A) **My 100**
Transient Temperature Measurement in Moving Fluids (77-WA/TM-3) (A) **My 96**

Temperature Measurements
Asperity Interactions in EHD Contacts (77-Lub-19) (A) **Mr 86**
Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) (A) **Mr 86**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) (A) **Mr 86**
Numerical Linearization of Thermistor Bridge Circuits for in Vivo Medical Research (77-WA/Bio-14) (A) **Ap 99**
Radiation Effects in Boiling Water Reactor Pressure Vessel Steels (78-Mat-11) (A) **O 99**
A Simple Method for the Predicton of Wall Temperatures in Gas Turbines (78-GT-90) (A) **Ag 90**
Strength of 304L Stainless Steel and Inconel Alloy 601 at Temperatures Above 1000°C (78-PVP-31) (A) **O 104**
Surveillance Capsule Results from the Oconee Class Reactors (78-Mat-22) (A) **O 101**
Temperature Prediction
A Numberical Method for Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) (A) **Je 107**
Temperature Profiles
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along Vertical Isothermal Wall (77-WA/HT-30) (A) **Ap 104**
Longitudinal Vortices in a Horizontal Boundary Layer in Water Including the Effects of the Density Maximum at 4°C (78-HT-25) (A) **O 94**
Radiative Transfer in Hartmann MHD Flow (78-HT-18) (A) **O 94**
Thermosyphon Analysis of a Thermic Diode Solar Heating System (77-WA/Sol-9) (A) **My 98**
Temperature Range
Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**
Temperature Variation
Periodic Temperature of a Finite Wall Subjected to Periodic Heat Flux and Exposed to a Fluid with Periodic Temperature Variation (77-WA/Sol-6) (A) **My 97**
Temperature Variations
Effective Thermal Diffusivity for a Two-Layer Composite Wall Subject to Periodic Boundary Conditions (77-WA/Sol-10) (A) **My 97**
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) (A) **F 133**
Temperatures
The Pitting Performance of Hardened Steels (77-DET-39) (A) **Ja 111**
Tempered Steel
J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) (A) **O 99**
Tennessee Valley Authority
TVA's Cocurrent Scrubber Evaluation (77-WA/APC-8) (A) **My 102**
Tensile Properties
Finite Element Analysis of a Large Ridge Inert Atmosphere Creep Test Specimen (78-PVP-7) (A) **O 102**
Tensile Strength
Properties of a Special A 387gr5 Steel (77-Pet-59) (A) **Ja 104**
Spring Fatigue Recommended Design Stresses (78-DE-5) (A) **S 73**
On the Tensile and Compressive Strength of Solids Weakened (Strengthened) by an Inhomogeneity (77-WA/APM-4) (A) **Je 111**
Tensile Stress
Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) (A) **Mr 86**
Tension Bars
Optimum Design of Fillets in Flat and Round Tension Bars (77-DET-45) (A) **Ja 112**
Tension Control
Reducing "Engineering Overkill" (BTR) **Ja 65**
Terminal Guidance Unit
Missile Seeker Can Penetrate Fog (BTR) **Ap 61**
Termuehlen, H. Steam Purity in German Power Plants: Standards, Operational Data and Effects on Turbine Components (78-JPGC-Pwr-20) (A) **D 84**
Terreault, B. Helium Blistering in Metals (78-Mat-5) (A) **O 99**
Terrestrial Gas Turbine
Training in the Gas Turbine Field in Belgium, in France, in Italy (78-GT-169) (A) **Ag 117**
Terry, M. C. "Bill" The Offshore LNG Facility—1977 Status Review (77-Pet-83) (A) **Ja 107**
Tertiary Oil Recovery
An Automatic Blending and Injection System for Tertiary Oil Recovery by Chemical Flooding (77-Pet-44) (A) **Ja 103**
Tesak, E. G. Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) (A) **Ja 113**
Tesar, D. The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) (A) **S 72**; Model Formulation of Complex Mechanisms With Multiple Inputs: Part I—Geometry (77-WA/DE-9) (A) **Mr 94**; Part II—The Dynamic Model (77-WA/DE-10) (A) **Mr 94**; Multiparametric Optimization of Four-Bar Linkages (78-DET-7) (A) **D 87**; A New Interpretation for the Dynamic Phenomena Associated with Geneva Mechanisms (78-DET-38) (A) **D 91**; Partial Dynamic State Synthesis by Use of Mass Parameters in a System Coupler Link (78-DET-61) (A) **D 93**
Tessarzik, J. M. The Stability of an Asymmetric Rotor in Damped Supports (78-GT-172) (A) **Ag 117**
Test Engineers
Employer's Expectation of Test Engineers (77-WA/DE-29) (A) **Mr 96**
Test Facility Utilization
Propulsion Test Facilities Technical Capabilities and International Use (78-GT-184) (A) **S 75**
Test Procedure
Low-Cost Test Procedure for Solar Collectors (77-WA/Sol-4) (A) **My 97**
Texas Lignite
The Influence of Drying and Stress on the Permeability of Texas Lignite (77-Pet-26) (A) **Ja 101**
Textile Engineering
Calculation of Peak Yarn Tension During Ring-Spinning (77-Tex-6) (A) **F 132**
The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) (A) **F 132**
Combing of Opening Room Blends of Cotton and Polyester (77-Tex-5) (A) **F 132**
A New Hooked Needle Device for Forming Fiber Beards for Length and Strength Measurement (77-Tex-2) (A) **F 131**
An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) (A) **F 131**
On the Thermal Effects in a Wrap Beam (A Wound-Yarn-Package) (77-Tex-3) (A) **F 132**
Textile Processes
Striving for More Efficient Textile Processes **Ja 85**
Textile Spindles
One-Stage and Two-Stage Vibration Isolators as Applied to High-Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) (A) **F 124**
Tharp, T. A New Approximate Approach for Elastic Body Contact in Roller Bearings (78-DE-18) (A) **S 74**
Thaw Rate
Approximate Thawing of Permafrost Beneath a Buried Pipe (77-WA/HT-18) (A) **Ap 103**
Theocaris, P. S. Asymmetric Branching of Cracks (77-WA/APM-16) (A) **Jl 98**
Theoretical Analysis
Vibration of Cantilever Sandwich Beams (78-DE-20) (A) **O 92**
Thermal-Acoustical Disturbances
Thermal-Acoustical Phenomena in Pulsed High-Energy Lasers (78-HT-61) (A) **O 98**
Thermal Analysis Verification
Fast Flux Test Facility Pump-Thermal Analysis Verification (77-WA/NE-14) (A) **Je 102**
Thermal Analyzers
PIPESD/HEAT: A Transient Thermal Analyzer Evaluating Class 1 Piping Components According to Section III of the ASME Code (78-PVP-80) (A) **N 121**
Thermal Annealing
A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) (A) **O 100**
Thermal Barrier Coatings
Analytical Investigation of Thermal Barrier Coatings for Advanced Power Generation Combustion Turbines (77-WA/Ener-13) (A) **My 95**
Thermal Behavior
Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) (A) **Mr 86**
Thermal Boundary Layers
Longitudinal Vortices in a Horizontal Boundary Layer in Water Including the Effects of the Density Maximum at 4°C (78-HT-25) (A) **O 94**
Thermal Conduction
An Iterative Approach to the Solution of Inverse Heat Conduction Problems (77-WA/TM-2) (A) **My 95**
Thermal Conductivity
Determination Tissue Perfusion from In Vivo Thermal Conductivity Measurements (77-WA/HT-40) (A) **My 99**
Downhole Measurements of Thermal Conductivity in Geothermal Reservoirs (77-Pet-23) (A) **Ja 100**
Thermal Conductivity of Water and Steam **Ag 46**
Thermal Control
Atmosphere Cloud Physics Laboratory Thermal Control (78-ENAs-9) (A) **N 111**
Thermal Control Subsystem
Active Thermal Control Subsystem Development (78-ENAs-6) (A) **N 110**
Thermal Damage
Thermal Damage and Rail Load Stresses in a 33-In. Railroad Car Wheel (77-WA/RT-2) (A) **Mr 84**
Thermal Design Criteria
Thermal Design Criteria for Solar Hot Water Systems in Tropical Climates (78-HT-37) (A) **O 95**
Thermal Diffuser
Aircraft Fuel Pumps—Where We're At (A Review of Some Problems and Their Current Solutions) (78-GT-10) (A) **Jl 88**
Thermal Diffusivity
Effective Thermal Diffusivity for a Two-Layer Composite Wall Subject to Periodic Boundary Conditions (77-WA/Sol-10) (A) **My 98**
Thermal Effects
Stress Response Investigations Related to In-Situ Gasification of Coal (77-Pet-25) (A) **Ja 101**
On the Thermal Effects in a Wrap Beam (A Wound-Yarn-Package) (77-Tex-3) (A) **F 132**
Thermal Efficiency
Higher Fuel Efficiency for EMD Diesel Locomotives (78-RT-4) (A) **O 90**
A New Approach for Increasing the Thermal Efficiency of Steam Power Cycles (78-JPGC-Pwr-2) (A) **D 82**
Transpiration Air Protected Turbine Blades—An Effective Concept to Achieve High Temperature and Erosion Resistance for Gas Turbines Operating in an Aggressive Environment (78-GT-100) (A) **Ag 108**
Thermal Electric Power Systems
Power System Economics: on Selection of Engineering Alternatives (77-JPGC-Pwr-7) (A) **Mr 88**
Thermal Energy
Low-Grade Thermal Energy-Conversion Joule Effect Heat Engines (78-ENAs-7) (A) **N 110**
Moving Ahead on Ocean Thermal Energy (ES) **Je 19**
Thermal Energy Conversion
Heat Transfer in Packed Beds at Low Reynolds Number (78-HT-46) (A) **O 97**
Thermal Energy Storage
Analysis of Advanced Compressed Air Energy Storage Concept (78-HT-53) (A) **O 97**
Canada Hosts International Heat Transfer Conference (NR) **My 69**
Thermal Energy Storage Heat Exchanger Design (78-ENAs-30) (A) **D 86**
Thermal Energy Storage Systems
Convective Heat Transfer in Porous Media (78-HT-45) (A) **O 96**
Thermal Engine
Diesel Engine Progress (IF) **N 73**
Thermal Equilibrium
Energy Equations for Convection in Saturated Porous Media (78-HT-54) (A) **O 97**
Thermal Expansion
Thermoelastic Effects in Frictionally Heated Line Contact of Slab Like Bodies (77-Lub-21) (A) **Mr 86**
Thermal Fatigue
Stresses in Turbine Blades Due to Temperature and Load Variation (78-GT-158) (A) **Ag 115**
Thermal Fatigue Life
A Study of Thermal Fatigue Life Prediction of Air-Cooled Turbine Blades (78-GT-63) (A) **Jl 95**
Thermal Flow Development
Thermal Development of Flow in the Entrance Region of a Channel with Periodic Boundary Conditions (78-HT-27) (A) **O 95**
Thermal Gradients
Effect of Stabilizing Thermal Gradients on Natural Convection in Rectangular Enclosures (78-HT-42) (A) **O 97**
Thermal/Hydraulic Design
Thermal/Hydraulic Design of Dry-Saturated Steam Evapo-

rators for a Large Fast Breeder Reactor Plant (78-JPGC-NE-7) (A) **D 85**

Thermal-Hydraulic Performance
Thermal-Hydraulic Performance of a Consolidated Nuclear Steam Generator (CNSG) Module (77-JPGC-NE-2) (A) **Mr 89**

Thermal Injury
Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation (77-WA/HT-45) (A) **My 100**

Thermal Injury Kinetics
Kinetics of Thermal Injury of Cell Populations Exposed to Supraphysiological Temperatures (77-WA/HT-44) (A) **My 100**

Thermal Loading
Locating Pipe Supports for Combined Thermal and Seismic Loading (77-PVP-63) (A) **Ja 108**

Thermal Performance
The Effect of Nonuniform Fluid Flow Distribution on Thermal Performance of Crossflow Heat Exchanger (77-WA/HT-3) (A) **Ap 101**
Radiant Exchange for a Fin and Tube Solar Collector (78-HT-33) (A) **O 96**

Thermal Performance Characteristics
Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) (A) **My 97**

Thermal Plume
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along Vertical Isothermal Wall (77-WA/HT-30) (A) **Ap 104**
Structure of a Turbulent Thermal Plume Rising Along an Isothermal Wall (78-HT-24) (A) **O 94**

Thermal Process Control Applications
Microcomputer Implementation of Direct Digital Control Algorithms for Thermal Process Control Applications (77-WA/Aut-3) (A) **Je 102**

Thermal Properties
A Simple Method for Measuring and Monitoring Thermal Properties in Tissues (77-WA/HT-42) (A) **My 100**
Approximate Thawing of Permafrost Beneath a Buried Pipe (77-WA/HT-18) (A) **Ap 103**

Thermal Reactors
Use of Thorium in Power Reactors (77-JPGC-NE-24) (A) **Mr 92**

Thermal Response
Thermal Response of Slabs Subjected to Nonsymmetric Convective Heat Transfer (78-DE-8) (A) **S 72**

Thermal Shock
Response of a Finite Thin Cylindrical Shell of Graphite Materials to a Thermal Shock (77-WA/HT-9) (A) **Ap 102**

Thermal Stratification
A Passive Technique for Enhancing Thermal Stratification in Liquid Storage Tanks (78-HT-50) (A) **O 97**
Stratified Versus Well-Mixed Sensible Heat Storage in a Solar Space Heating Application (78-HT-49) (A) **O 98**

Thermal Stress Effects
Thermal Stress Effects and Surface Cracking Associated With Laser Use on Human Teeth (77-WA/Bio-3) (A) **Mr 97**
Thermal Stress Effects and Surface Cracking Associated with Laser Use on Human Teeth (77-WA/HT-43) (A) **My 100**

Thermal Stress Response
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) (A) **Je 101**

Thermal Stresses
Mechanical and Thermal Stresses in the Volute of a Pump Casing (78-PVP-45) (A) **N 117**
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) (A) **Je 106**

Thermal Transients
Thermal Transient Stress Analysis of Cylinder-to-Cylinder Structures by the Finite Plate Method (78-PVP-76) (A) **N 120**

Thermal Trauma
A Technique for the Measurement of Burn Induced Leakage of Macromolecules in Living Tissue (77-WA/HT-46) (A) **My 100**

Thermal Vertical Support Members
Thermal Performance Verification of Thermal Vertical Support Members for the Trans-Alaska Pipeline (77-WA/HT-34) (A) **Ap 105**

Thermic Diode Solar Panels
Thermosyphon Analysis of a Thermic Diode Solar Heating System (77-WA/Sol-9) (A) **My 98**

Thermionic Energy
Thermionic Energy Conversion Topping System (77-WA/Ener-6) (A) **My 94**

Thermionic Topping Power Plant
Performance and Cost Evaluation for a Thermionic Topping Power Plant (77-WA/Ener-7) (A) **My 94**

Thermistor Bridge Circuits
Numerical Linearization of Thermistor Bridge Circuits for in Vivo Medical Research (77-WA/Bio-14) (A) **Ap 99**

Thermistor Probes
Experimental Evaluation and Analysis of Thermistor Probes for Recording Clinical In Vivo Temperatures (77-WA/HT-44) (A) **My 100**

Thermodynamic Equations
Fume Formation in Ammonia Scrubbers (77-WA/APC-2) (A) **My 101**

Thermodynamic Process
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) (A) **S 74**

Thermodynamics
Alternative Closed-Cycle Gas Turbine System Design Considerations for Ship Propulsion Applications (78-GT-18) (A) **Ji 89**
Dynamic Characteristics of Double-Pipe Heat Exchangers with Double Phase Change (77-WA/HT-26) (A) **Ap 104**
The Second Law of Thermodynamics (CB) **Je 112**
Steam Tables: Thermodynamic Properties of Water Including Vapor, Liquid, and Solid Phases (CB) **N 127**
A Thermodynamic Study of Heating With Geothermal Energy (77-WA/Ener-1) (A) **My 93**

Thermoelastic Analysis
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) (A) **O 101**

Thermoelastic Patch Contact
The Thermoelastic Patch Contact Problem for Large Peclet Number (77-Lub-32) (A) **Mr 87**

Thermoelectric Cooling Device
Cigar-Box-Sized Refrigerator (BTR) **Ag 57**

Thermoelectric Evaporation System
A Thermoelectric Integrated Membrane Evaporation System (78-ENAs-19) (A) **N 112**

Thermoelectric Generators
Thermoelectric Generators for Solar Energy Conversions (78-DET-75) (A) **D 95**

Thermoelectronic Laser Energy Converter
Convert Laser Power to Electrical Power (BTR) **Je 59**

Thermonuclear Temperatures
Tokamak Reactors (77-WA/NE-3) (A) **Je 100**

Thermoplastic Conveyor Chains
A Technique for Assessing the Running Life of Thermoplastic Conveyor Chains (77-DET-160) (A) **F 129**

Thermosyphon Analysis
Thermosyphon Analysis of a Thermic Diode Solar Heating System (77-WA/Sol-9) (A) **My 98**

Thick-Walled Cylinder
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) (A) **Ji 98**

Thickness Testing
Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) (A) **Ja 101**

Thickness Variations
The Effect of Thickness Variations on the Behaviour of Smooth Curved Pipes Under External Bending (78-PVP-93) (A) **N 123**

Thin Cylindrical Shell
Response of a Finite Thin Cylindrical Shell of Graphite Materials to a Thermal Shock (77-WA/HT-9) (A) **Ap 102**

Thin-Film Cells
Higher-Efficiency Thin-Film Cells (ES) **N 21**

Thin Rectangular Plates
Free Vibration of Thin Rectangular Plates by a Mixed Finite Element (77-DET-143) (A) **F 128**

Thin Shell Theory
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-67) (A) **Ja 114**

Thoma, F. A. Pitting Can Be Caused by Inadequate Lubrication (77-DET-114) (A) **F 125**

Thomas, J. M. Mechanical Analysis of Steam Generator Tube Denting (78-NE-5) (A) **N 115**

Thompson, C. D. Test Evaluation of Space Station ECLSS Maintenance Concepts (78-ENAs-43) (A) **D 87**

Thompson, D. Flame Characteristics of a NASA Contra Swirler Module (78-GT-163) (A) **Ag 116**

Thompson, D. E. Propeller Unsteady Thrust Due to Operation in Turbulent Inflows (78-GT-94) (A) **Ag 107**

Thompson, J. S. Aircraft Fuel Pumps—Where We're At (A Review of Some Problems and Their Current Solutions) (78-GT-10) (A) **Ji 88**

Thompson, N. J. Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/Prod-29) (A) **Je 107**

Thompson, T. W. The Influence of Drying and Stress on the Permeability of Texas Lignite (77-Pet-26) (A) **Ja 101**

Thorium
Alternate Fuel Cycles in HTGR's (77-JPGC-NE-26) (A) **Mr 92**
Breeder Reactors (C) **D 36**
Use of Thorium in Power Reactors (77-JPGC-NE-24) (A) **Mr 92**

Thorne, W. L. Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**

Thornton, G. K. The Development of a Large-Diameter Rotating Helium Rig (77-WA/HT-38) (A) **My 99**

Thornton, W. A. A Hierarchy of Methods for Analysis of Elastic Mechanisms with Design Applications (78-DET-56) (A) **D 92**; Mechanism Optimization Via Optimally Criterion Techniques (78-DET-53) (A) **D 91**; Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) (A) **Ja 111**

Thorpe, C. R. Sealing Forces for Leak-Tight Operation of a Self-Energized Pressure Vessel Closure (78-PVP-16) (A) **O 103**

Three-Axle Locomotive Truck
Hunting Stability of the Three-Axle Locomotive Truck (78-RT-6) (A) **O 91**

Three-Dimensional Cutting Process
Analytical Prediction of Three-Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) (A) **Je 104**

Three-Dimensional Design
A Hierarchical Data Organization-Facilitating Interactive Three-Dimensional Design (77-DET-108) (A) **F 125**

Three-Dimensional Flow
The Three-Dimensional Flow and Blade Wake in an Axial Plane Downstream of an Axial Compressor Rotor (78-GT-66) (A) **Ji 95**

Three-Dimensional Flows
Computations of Three-Dimensional Gas-Turbine Combustion Chamber Flows (78-GT-142) (A) **Ag 114**
A Numerical Investigation of Three-Dimensional Flows in a Rotating Duct by a Partially-Parabolic Procedure (77-WA/FE-7) (A) **Ap 94**

Three-Dimensional Geometries
Automating Mechanical Design Procedures (BTR) **F 54**

Three-Dimensional Natural Convection
Three-Dimensional Natural Convection in a Confined Porous Medium Heated from Below (78-HT-56) (A) **O 98**

Three-Dimensional Roughness
An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) (A) **Mr 86**

Three Disk Flexible Rotor
Steady-State Unbalance Response of a Three Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) (A) **F 124**

Three-Layer Damped Circular Ring
The Forced Vibration of a Three-Layer Damped Circular Ring (77-DET-154) (A) **F 129**

Through Cracks
An Analysis of the Propagation of a Brittle Circumferential Crack in a Pipe Subjected to Axial Stresses (78-PVP-101) (A) **N 124**

Through Flow Analysis
Through Flow Analysis of Centrifugal Compressors (78-GT-110) (A) **Ag 109**

Thrust Bearings
Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) (A) **Mr 87**

Thrust Vectoring Modes
Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**

Thullen, P. Flexural Vibrations of Rotating Electromagnetic Shields (77-WA/DE-15) (A) **Mr 95**; A Pulsed Homopolar Machine with Superconducting Field Coils (77-WA/HT-35) (A) **My 99**

Thumann, A. *(author)* Plant Engineers and Managers Guide to Energy Conservation (CB) **F 135**

Thurgood, M. J. Analysis of a Canister Closure Design by

Damage Tolerance Concepts (78-PVP-108) (A) **N 125**

Thurston, G. C. Core Auxiliary Heat Exchanger Design for HTGR (78-NE-9) (A) **N 114**

Tichy, J. A. An Investigation Into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) (A) **Mr 86**

Tidal Power Generation
Tidal Thoughts (C) **Ja 50**

Tiffin, W. T. Commitment Needed (C) **F 52**

Tillette, Z. P. An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Jl 94**

Tilt Nacelle Aircraft
Development of an Inlet for a Tilt Nacelle Subsonic V/STOL Aircraft (78-GT-121) (A) **Ag 111**

Tilt Rotor
Tilt Rotor Research Aircraft (BTR) **Je 55**

Tilting Pad Bearings
A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) (A) **Ja 109**

Time-Delayed Systems
The Regeneration Spectrum—A New Tool for the Stability Analysis of a Class of Linear Time Delayed Systems (77-WA/Aut-9) (A) **Je 103**

Time Dependent Energy Sources
Turbulent Natural Convection in a Horizontal Fluid Layer with Time Dependent Volumetric Energy Sources (78-HT-6) (A) **O 92**

Time-Dependent Variables
Correction of Optimal Parameters in Systems with Small Delays (77-WA/Aut-7) (A) **Je 103**

Time-Phased Development
Time-Phased Development Methodology-The Key For Reliable Engines In Future Military Aircraft Weapons Systems (78-GT-167) (A) **Ag 116**

Time Standardization
Validity of Colville's Time Standardization for Comparing Optimization Codes (77-DET-116) (A) **F 126**

Time-Temperature Parameters
On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) (A) **O 98**

Timing Belts
Load Distribution in Timing Belts (77-DET-100) (A) **F 124**

Timmis, P. H. Recent Experience on Centrifugal Compressors for Small Gas Turbines (78-GT-193) (A) **S 76**

Timoshenko Beam
Dynamic Stability of Fixed-Fixed and Free-Free Timoshenko Beams Resting on an Elastic Foundation (77-DET-134) (A) **F 127**

Timoshenko Cantilevers
Stability of Elastically Restrained Timoshenko Cantilevers With Attached Masses Subjected to a Follower Force (77-WA/APM-7) (A) **Jl 97**

Ting, F. T. C. Origin and Spacing of Cleats in Coal Beds (77-Pet-24) (A) **Ja 101**

Ting, K. L. Higher Order, Planar Tangent-Line Envelope Curvature Theory (78-DET-21) (A) **D 89**

Tipei, N. Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) (A) **Mr 86**

Tipton, J. A Digital Approach to Industrial Gas Turbine Control (78-GT-39) (A) **Jl 91**

Tirosh, J. On the Tensile and Compressive Strength of Solids Weakened (Strengthened) by an Inhomogeneity (77-WA/APM-4) (A) **Je 111**

Tissue Perfusion
Determination of Tissue Perfusion from In Vivo Thermal Conductivity Measurements (77-WA/HT-40) (A) **My 99**

Tobe, T. Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-46) (A) **Ja 112**

Toggle Switch
Hall-Effect Toggle Switch (BTR) **Ap 55**

Tokamak Fusion Test Reactor
Waste Tritium Cleanup for the Tokamak Fusion Test Reactor (TFTR) (78-JPGC-NE-15) (A) **D 86**

Tokel, H. Dynamic Stall of An Airfoil with Leading Edge Bubble Separation Involving Time Dependent Re-Attachment (78-GT-194) (A) **S 76**

Tomita, N. Determining the Coefficient of Friction of Rolling Disks (77-Lub-11) (A) **Mr 85**

Tomizuka, M. Deterministic Disturbance Rejection in Linear Identification (77-WA/Aut-1) (A) **Je 102**

Tong, K. J. Inelastic Stress Distribution in Tubesheet Ligaments Under Thermal and Mechanical Loading (77-JPGC-NE-22) (A) **Mr 91**

Tong, L. S. Elections to Fellow Grade **Ap 91**

Tonnesen, J. Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) (A) **Mr 86**

Tonnesen, J. Some Experiments on Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) (A) **Ja 109**

Tool Joints
Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) (A) **Ja 106**

Tool Life
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) (A) **Je 107**
An Experimental Strategy for Designing Tool Life Experiments (77-WA/Prod-24) (A) **Je 106**
Optimal Edge Geometry for Maximum Tool Life (77-WA/Prod-43) (A) **Je 108**
Tool Life Distributions: Part 4—Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) (A) **Je 108**

Tool Life Distribution
Tool Life Distribution: Part 3—Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) (A) **Je 108**

Tool Life Variation
Machining Economics and Tool Life Variation: Part 1—Basic Considerations and their Practical Implications (77-WA/Prod-12) (A) **Je 104**

Tools
Analytical Prediction of Three-Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) (A) **Je 104**
Application of the Regeneration Spectrum to the Design of Machine Tool Chatter Control Systems (77-WA/Aut-8) (A) **Je 103**
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) (A) **Je 105**
Correlation of Tempering Effects With Temperature Distribution in Steel Cutting Tools (77-WA/Prod-16) (A) **Je 104**
Flank Wear Model of Cutting Tools Using Control Theory (77-WA/Prod-20) (A) **Je 105**
The Regeneration Spectrum—A New Tool for the Stability Analysis of a Class of Linear Time Delayed Systems (77-WA/Aut-9) (A) **Je 103**

Tooth Implants
"Bioactive" Materials for Bone, Tooth Implants (BTR) **My 60**

Tooth Loads
Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) (A) **F 124**
Spring of the Ring (77-DET-125) (A) **F 126**

Tooth Profile
Effect of Number of Gashes in Hob on Accuracy of Generated Tooth Profile of Worm Gear (77-DET-55) (A) **Ja 112**
Wear of Gears of Double Circular-Arc Tooth-Profile (77-DET-59) (A) **Ja 113**

Tooth Root
Human Implant of Ceramic Tooth Root (BTR) **O 53**

Tooth Root Fillet
The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) (A) **Ja 112**

Tooth Spacing Errors
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Radio (77-DET-68) (A) **Ja 113**

Tooth Surfaces
A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) (A) **Ja 113**

Topological Techniques
Topological Reaction Force Analysis (78-DET-58) (A) **D 93**

Topper, T. H. Fatigue Crack Propagation of Short Cracks (78-Mat-7) (A) **O 100**

Topping Steam Power Plants
Thermionic Energy Conversion Topping System (77-WA/Ener-6) (A) **My 94**

Torda, T. P. New Directions in Engineering Education **Jl 38**. New Directions in Engineering Education Suggestions for Developed Countries (77-WA/TS-6) (A) **My 99**

Tordion, G. V. Flat Belt Dynamics, Including Viscoelastic Effects (77-DET-166) (A) **F 130**

Tornadoes
Radar Detects Tornadoes (BTR) **Je 53**

Toroidal Thermosyphon
Flow in a Toroidal Thermosyphon with Angular Displacement of Heated and Cooled Sections (78-HT-44) (A) **O 97**

Torque Applications
New Rolling Key Drive for Light Torque Applications (BTR) **Ag 62**

Torque Capacity
Standard-Pitch Gearing **Ap 41**

Torque Characteristics
Technology Transfer in the Determination of Torque Characteristics of Instrument Ball Bearings at High Speeds with Radial and Axial Loads (78-DET-69) (A) **D 94**

Torque Disturbance
Compliance of the Human Ankle Joint (77-WA/Bio-2) (A) **Mr 97**

Torque Equation
The Trailing Shoe Type Centrifugal Clutch—Design Principles and Characteristics (77-DET-126) (A) **F 126**

Torque Generation
Synthesis of the Plane Four-Bar Mechanism for Torque Generation, and Application to a Case Study for the Design of a New Balancing Mechanism for Rotary Top Brush in Power Wax Car Washing Machines (78-DET-71) (A) **D 94**

Torque Regions
A Complementary Large Slip Solution in V-belt Mechanics (77-DET-162) (A) **F 130**

Torque Transmitters
Confidence in Fits (C) **My 53**

Torque Tubes
The Development of a Large-Diameter Rotating Helium Rig (77-WA/HT-38) (A) **My 99**

Torsion
Torsion of Bars of Solid Polygonal and Hollowed Polygonal-Circular Cross Sections (77-WA/DE-27) (A) **Mr 96**

Torsion Tests
A Three-Dimensional Finite Element Analysis of the Double Torsion Test (78-PVP-96) (A) **N 123**

Torsional Mechanical System
Optimization of a Nonlinear Torsional Mechanical System (77-DET-107) (A) **F 125**

Torsional Response
Torsional Response of Compressor Shaft Systems During Synchronous Motor Startup. Part I—Analytical Model (77-Pet-49) (A) **Ja 103**; Part II—Field Measurement Techniques (77-Pet-60) (A) **Ja 104**; Part III—Abnormal Motor Conditions (77-Pet-56) (A) **Ja 104**

Torsional Vibration
On the Torsional Vibration of Branched Systems Using Extended Transfer Matrix Method (77-WA/DE-4) (A) **Mr 93**

Torsional Vibration System
The Horizontal Plate Filter as a Torsional Vibration System with Vibration Absorption (77-DET-86) (A) **F 123**

Torsional Vibrations
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) (A) **Ja 110**
Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) (A) **Ja 114**
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) (A) **Ja 110**

Torvik, P. J. Application of an Eigenfunction Expansion to the Determination of Stress-Intensity Factors (77-WA/GT-1) (A) **Ap 100**

Total Band Absorption
Comparison of Analytical Model with Approximate Models for Total Band Absorption and its Derivative (78-HT-15) (A) **O 93**

Touchton, G. L., III Preliminary Design of Three Combustion Concepts to Burn Low Btu Coal Gas in a High Temperature 1600°C (3000°F) Combustion Turbine (78-GT-71) (A) **Ag 105**

Townsend, D. P. Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) (A) **F 126**; Study of Lubrication Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) (A) **F 124**

Toyoda, J. Interface Pressure Distribution in a Bolt-Flange Assembly (77-WA/DE-11) (A) **Mr 94**

Tracking Device
Simple Mechanical Solar Tracker (BTR) **S 58**

Tracking Models
Tracking and Shadowing Models for Solar Collection Systems (77-WA/Sol-8) (A) **My 97**
Trackside Instrumentation
Techniques for Measuring Wheel/Rail Forces with Trackside Instrumentation (77-WA/RT-9) (A) **Mr 85**
Traction Behavior
Traction Behavior in Sliding ehl Contacts (77-Lub-5) (A) **F 132**
Traction Coefficients
Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) (A) **F 132**
Traction Motors
Locomotive Matters (C) **My 50**
Trade Secrets
Protecting Your Intellectual Property **Ja 27**
Tradeoff Study
The Formal Tradeoff Study as a Mechanical Design Tool (78-DE-4) (A) **S 72**
Traffic Flow
Optical Traffic-Sensing (BTR) **O 52**
Train Braking
Braking Duty in North American Freight Train Service and Effects on Brake Equipment, Brake Shoes and Wheels (78-RT-9) (A) **O 91**
Train Dynamics Analyzer
Train Dynamics Analyzer: A Training Simulator for Locomotive Engineers (77-WA/RT-10) (A) **Mr 85**
Training Programs
Training in the Gas Turbine Field in Belgium, in France, in Italy (78-GT-169) (A) **Ag 117**
Training Programs Needed (EN) **N 80**
Training Simulator
Train Dynamics Analyzer: A Training Simulator for Locomotive Engineers (77-WA/RT-10) (A) **Mr 85**
Trailing Shoe Clutch
The Trailing Shoe Type Centrifugal Clutch—Design Principles and Characteristics (77-DET-126) (A) **F 126**
Trans-Alaska Pipeline
Thermal Performance Verification of Thermal Vertical Support Members for the Trans-Alaska Pipeline (77-WA/HT-34) (A) **Ap 105**
Trans-Alaskan Pipeline
West Coast—Mid Continent Pipeline Project (Engineering/Management Phases for Conversion of Natural Gas Transmission Systems to Crude Oil Transportation) (77-Pet-65) (A) **Ja 105**
Transducers
Synthesis of Blade Flutter Vibratory Patterns Using Stationary Transducers (78-GT-160) (A) **Ag 116**
Transfer Matrix
The Riccati Transfer Matrix Method (77-DET-32) (A) **Ja 110**
On the Torsional Vibration of Branched Systems Using Extended Transfer Matrix Method (77-WA/DE-4) (A) **Mr 93**
Transient Behavior
Turbulent Natural Convection in a Horizontal Fluid Layer with Time Dependent Volumetric Energy Sources (78-HT-6) (A) **O 92**
Transient Conduction
Transient Conduction in the Space Surrounding a Ring of Holes (77-WA/HT-12) (A) **Ap 102**
Transient Cooling
PWR Normal Shutdown Transient Response Using Runge-Kutta's Technique (78-JPGC-Pwr-1) (A) **D 82**
Transient Heat Transfer
Analysis of Transient Heat Transfer in Porous Solids with Application Toward Phase Separation Processes (77-WA/HT-13) (A) **Ap 102**
Transient Loads
Computer Code for Predicting the Dynamic Response of High Energy Piping, Pressure Vessels, and Shell Structures Subjected to Transient Loads and Impacts (78-PVP-33) (A) **N 116**
Dynamic Analysis of a Pressurized Water Reactor Coolant System Subjected to Postulated Loss-of-Coolant Accident Transient Loads (77-WA/DE-23) (A) **Mr 96**
Transient Response of Thin, Thick, or Sandwich Shells and Pressure Vessels Subjected to Transient Loads (78-PVP-35) (A) **N 116**
Transient Modal Rotordynamic Models
Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) (A) **F 122**
Transient Overpower Analysis
Fuel Porosity and Crack Effects on Transient Overpower Analysis (78-PVP-52) (A) **N 118**
Transient Response
Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**
Transient Response of a Rotor In Damped Bearings (77-DET-21) (A) **Ja 109**
Transient Rod Drive
Dynamic Analysis of a High-Speed Electrohydraulic Transient Rod Drive System (77-WA/Flcs-8) (A) **Ap 97**
Transient Techniques
Heat Transfer Distribution on Annular Fins (78-HT-30) (A) **O 96**
Transit System
New York's First Subway—The Makings of an Urban Institution **Ap 83**
Transitional Boundary Layers
Laminar, Transitional, and/or Turbulent Three-Dimensional Boundary Layers over Arbitrary Blunt-Nosed Bodies Including Surface Curvature Effects (78-HT-23) (A) **O 94**
Transmissibility
On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) (A) **Mr 86**
Transmission Constraints
Optimization of Crank-and-Rocker Linkages with Size and Transmission Constraints (78-DET-6) (A) **D 87**
Transmission Errors
Transmission Errors and Noise of Spur Gears Having Uneven Tooth Profile Errors (77-DET-51) (A) **Ja 112**
Transmission Lines
UHV Effects on Ecosystem (BTR) **N 66**
Transmission Mechanism
The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) (A) **Ja 113**
Transmission Systems
Components to Meet UHV Demands (ES) **N 21**
Prospects for the Gas Turbine in the U.K. Gas Transmission System (78-GT-53) (A) **Jl 94**
Selection of Compressors and Driving Equipment (78-GT-168) (A) **Ag 116**
Using Bevel Gear Differentials **My 36**
West Coast—Mid Continent Pipeline Project (Engineering/Management Phases for Conversion of Natural Gas Transmission Systems to Cruse Oil Transportation) (77-Pet-65) (A) **Ja 105**
Transmissions
Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) (A) **Je 102**
Transonic Cascade Flows
Direct Blade Force Measurements in Transonic Cascade Flows (78-GT-45) (A) **Jl 93**
Transonic Rotors
A Design Point Correlation for Losses due to Part-Span Dampers on Transonic Rotors (78-GT-153) (A) **Ag 115**
Transpiration-Cooled Blade
Transpiration Air Protected Turbine Blades—An Effective Concept to Achieve High Temperature and Erosion Resistance for Gas Turbines Operating in an Aggressive Environment (78-GT-100) (A) **Ag 108**
Transpiration Cooled Turbine Blading
Performance and Design of Transpiration-Cooled Turbine Blading (78-GT-122) (A) **Ag 111**
Transpired Boundary Layers
Extended Mixing-Length Hypothesis Application to Transpired or Roughwall Compressible Boundary Layers (78-HT-22) (A) **O 94**
Transport System
Capsule-Tube Transport System (IF) **Mr 58**
City Traffic: A Systems Digest (CB) **Je 113**
Transport Tank Trailers
Improved LNG Semi Trailer Design (77-Pet-57) (A) **Ja 104**
Transportable Lathe
Transportable Lathe Speeds Nuclear Retrofit (BTR) **O 55**
Transportation
Automated Urban Mass Transportation (BTR) **Ja 56**
Jebba Hydroelectric Project (IF) **My 65**
Transport Without Wheels (CB) **Je 114**
Transportation Energy Conservation Data Book (CB) **My 105**
Transporter Devices
Animal Life Support Transporters for Shuttle/Spacelab (78-ENAs-10) (A) **N 112**
Transverse Magnetic Field
Liquid Metal Heat Pipe Performance in the Presence of a Transverse Magnetic Field (78-ENAs-20) (A) **N 112**
Transverse Oscillations
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) (A) **Ja 113**
Transverse Shearing Deformations
Effect of Transverse Shearing Deformations on the Coupled Twist-Bending of Curved Beams (78-PVP-102) (A) **N 124**
Transverse Vibrations
Transverse Vibrations of Cantilever Beams Having Unequal Breadth and Depth Tapers (77-WA/APM-19) (A) **Jl 98**
Transversely Injected Stream
The Effect of a Transversely Injected Stream on the Flow Through Turbine Cascades: Part 3—Influence of Aspect Ratio (78-GT-24) (A) **Jl 89**
Trantina, G. Demonstration of Ceramic Design Methodology for a Ceramic Combustor Liner (78-GT-137) (A) **Ag 113**
Tribology
Tribology R & D Plan **Jl 80**
Tricycles
Bicycles and Tricycles (CB) **My 105**
Trim Balancing
Turbine Engine Automated Trim Balancing and Vibration Diagnostics (78-GT-129) (A) **Ag 112**
Triple-Correlations Closure Models
Triple-Correlations Closure Models in an Asymmetric Heated Plane-Jet with Negative Production (78-HT-1) (A) **O 92**
Tritium
Waste Tritium Cleanup for the Tokamak Fusion Test Reactor (TFTR) (78-JPGC-NE-15) (A) **D 88**
Trochoids
Algebraic Throchoids—Classification, Transformations, and Certain Properties (78-DET-57) (A) **D 93**
Troha, W. A. Turbine Engine Automated Trim Balancing and Vibration Diagnostics (78-GT-129) (A) **Ag 112**
Tropical Climates
Thermal Design Criteria for Solar Hot Water Systems in Tropical Climates (78-HT-37) (A) **O 95**
Troutman, S. J., Jr. Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) (A) **Ap 98**
Truck Performance
High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) (A) **Mr 84**
Truck Suspension Systems
Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) (A) **Mr 85**
Truitt, J. B. Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) (A) **O 102**
Trukstra, C. Generalized Second-Moment Reliability Analysis (78-PVP-105) (A) **N 124**
Trusch, R. B. A Thermoelectric Integrated Membrane Evaporation System (78-ENAs-19) (A) **N 112**
Tsai, Y. J. Sediment Control for a Power Plant Intake Screenwell (77-JPGC-Pwr-15) (A) **Mr 89**
Tsay, C. S. Free Vibration of Thin Rectangular Plates by a Mixed Finite Element (77-DET-143) (A) **F 128**
Tseng, A. A Three-Dimensional Finite Element Analysis of the Double Torsion Test (78-PVP-96) (A) **N 123**
Tseng, M. M. A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/Prod-19) (A) **Je 105**
Tso, W. K. Seismic Qualification Testing for Shutoff Mechanism for CANDU Reactor (78-PVP-41) (A) **N 117**
Tsubuku, T. Transmission Errors and Noise of Spur Gears Having Uneven Tooth Profile Errors (77-DET-51) (A) **Ja 112**
Tsukuda, Y. Development of 25,000 kW Class Two-Shaft Gas Turbine (77-Pet-43) (A) **Ja 102**
Tuason, E. B. PIPESD/HEAT: A Transient Thermal Analyzer Evaluating Class 1 Piping Components According to Section III of the ASME Code (78-PVP-80) (A) **N 121**
Tube Air Heat Exchangers
Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**
Tube Banks
Critical Review of Correlations for Predicting Two-Phase Flow Pressure Drop Across Tube Banks (77-WA/HT-23) (A) **Ap 104**
Cross Flow Induced Vibrations in a Tube Bank (78-PVP-25) (A) **O 104**
Response of a Tube Bank Turbulent Crossflow Induced

Excitation (77-DET-142) (A) **F 128**

Tube Bundle
Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) (A) **F 123**

Tube Calibration
The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (A) **Ap 93**

Tube Denting
Mechanical Analysis of Steam Generator Tube Denting (78-NE-5) (A) **N 115**

Tube Fretting
Experimental Studies of Tube Fretting in Steam Generators and Heat Exchangers (78-PVP-22) (A) **O 103**

Tube Heat Exchangers
On Thermal Expansion Induced Stresses in U-Bends of Shell- and Tube-Heat Exchangers (78-JPGC-NE-14) (A) **D 86**

Tube Solar Collectors
Heat Conduction Experiments in Rarefied Gases Confined Between Two Concentric Cylinders (78-HT-34) (A) **O 96**
Radiant Exchange for a Fin and Tube Solar Collector (78-HT-33) (A) **O 96**

Tube/Support Impact
Vibration of a Heat Exchanger Tube/Support Impact (77-JPGC-NE-5) (A) **Mr 90**

Tube Turbines
Pre-engineered Tube Turbine for Hydro Power (BTR) **F 58**

Tube Vibrations
Fluid Forces in Real Heat Exchanger Tube Vibrations (77-DET-146) (A) **F 128**

Tubes
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) (A) **Je 101**
The Elastic-Plastic Behavior of a Tube During Expansion (78-PVP-112) (A) **N 125**
Erosion-Corrosion Effects on Boiler Tube Metals in a Multi-solids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**
Evaporative Heat Transfer and Pressure Drop Performed of Internally-Finned Tubes with Refrigerant 22 (77-WA/HT-25) (A) **Ap 104**
Experimental Evaluation of Duplex Tube Heat Transfer Characteristics Stimulating Steam Generator External Heating (77-JPGC-NE-9) (A) **Mr 90**
Finite Element Analysis of Bourdon Tubes (79-PVP-67) (A) **N 119**
Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) (A) **F 122**
Fretting Wear of Heat Exchanger Tubes Part I: Experiments (78-JPGC-NE-8) (A) **D 84**; Part II: Models (78-JPGC-9) (A) **D 84**
Pre-service and In-service Inspection-Research and Development in Support of the Canadian Nuclear Power Program (78-PVP-23) (A) **O 104**
Recent Advances in Evaluating Critical Heat Flux Conditions in LMFBR Steam Generators (77-WA/NE-11) (A) **Je 101**
Study of Bolted Joint Integrity and Inter-Tube Pass Leakage in U-Tube Heat Exchangers—Part I: Analysis (77-WA/NE-6) (A) **Je 101**
Vibro-Impact Responses of a Tube with Tube-Baffle Interaction (78-PVP-20) (A) **O 103**

Tubesheet Heat Exchangers
An Analytical Method for Fixed Tubesheet Heat Exchangers and Its Experimental Verification (78-PVP-77) (A) **N 120**

Tubesheet Ligaments
Inelastic Stress Distribution in Tubesheet Ligaments Under Thermal and Mechanical Loading (77-JPGC-NE-22) (A) **Mr 91**

Tubesheets
Analysis of Closely Spaced Double Tubesheets Under Mechanical and Thermal Loadings (77-JPGC-NE-21) (A) **Mr 92**
Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) (A) **Mr 91**
Condenser Studies to Improve Reliability (BTR) **My 59**
The Effect of Primary Head Shape on Tubesheet Thickness (78-PVP-30) (A) **O 104**
Study of Bolted Joint Integrity and Inter-Tube-Pass Leakage in U-Tube Heat Exchangers—Part II: Applications (77-WA/NE-7) (A) **Je 100**
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) (A) **Mr 91**
Velocity Distributions and Turbulence Intensities at Tubesheets in a Two-Pass Condenser Model (78-JPGC-NE-6) (A) **D 85**
Verification of High Reliability Condenser Design (77-JPGC-Pwr-14) (A) **Mr 89**

Tubular Beams
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) (A) **F 123**

Tubular Gas Turbine Recuperators
Tubular Gas Turbine Recuperators (77-WA/HT-8) (A) **Ap 102**

Tubular Members
Force Systems Acting on Arbitrarily Directed Tubular Members in the Sea (77-Pet-38) (A) **Ja 102**

Tubular Products
Computerized Handling System (BTR) **Ap 51**

Tucker, A. I. Bevel Gears at 203 m/s (40,000 fpm) (77-DET-178) (A) **F 131**; The Spring of the Ring (77-DET-125) (A) **F 125**

Tuned Absorbers
Alternative Tuned Absorbers for Steady-State Vibration Control of Tall Structures (77-DET-84) (A) **Ja 115**

Tunnel Project
The Mediterranean - Dead Sea Project (BTR) **F 58**

Turbine Blades
Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) (A) **Ja 111**
Laser Precision in Turbine Construction (IF) **Jl 54**
Stresses in Turbine Blades Due to Temperature and Load Variation (78-GT-158) (A) **Ag 115**
A Study of Thermal Fatigue Life Prediction of Air-Cooled Turbine Blades (78-GT-63) (A) **Jl 95**
Turbine Blade Tip Clearance Measurement Utilizing Borescope Photography (78-GT-164) (A) **Ag 116**

Turbine Blading
Influence of Geometric Effects on the Aspect Ratio Optimization of Axial Turbine Bladings (78-GT-173) (A) **S 74**
Performance and Design of Transpiration-Cooled Turbine Blading (78-GT-122) (A) **Ag 111**

Turbine Burners
Investigating Combustion Turbine Burner Performance with Coal Derived Liquids Having High Fuel Bound Nitrogen (78-GT-126) (A) **Ag 111**

Turbine Cascades
The Effect of a Transversely Injected Stream on the Flow Through Turbine Cascades: Part 3—Influence of Aspect Ratio (78-GT-24) (A) **Jl 89**

Turbine Damage
Chromizing and Turbine Solid Particle Erosion (78-JPGC-Pwr-7) (A) **D 83**

Turbine Drivers
Selecting an Optimum Rating for Feedpump Turbine Drivers (78-JPGC-Pwr-4) (A) **D 82**

Turbine Engine
Description and Performance of a 7000-Shp Marine Gas Turbine Engine (78-GT-188) (A) **S 76**
Turbine Engine Automated Trim Balancing and Vibration Diagnostics (78-GT-129) (A) **Ag 112**

Turbine Erosion
An Investigation of Turbine Erosion by Combustor Generated Carbon in a Lightweight Marine Gas Turbine (78-GT-96) (A) **Ag 107**

Turbine Exit Guide Vanes
Application of Nonseries Airfoil Design Technology to Highly Loaded Turbine Exit Guide Vanes (78-GT-108) (A) **Ag 109**

Turbine Fuel Specifications
Alternative Aircraft Fuels (78-GT-59) (A) **Jl 94**

Turbine Gas Generator
The Application of Low Cost Manufacturing Technology to a Turbine Gas Generator (78-GT-202) (A) **S 77**

Turbine Gears
Advanced Industrial Turbine Gear Calculation Methods (78-GT-174) (A) **S 74**

Turbine-Generator Shaft Torsionals
Turbine-Generator Shaft Torsionals to be Discussed (NR) **Ag 71**

Turbine Materials
Strength Characterization of Various Silicon Base Turbine Materials (77-WA/GT-4) (A) **Ap 100**

Turbine Power
The Centaur Engine: Operational Progress Report (78-GT-159) (A) **Ag 116**

Turbine Power Generating Unit
Nonlinear Digital Simulation and Minimum Fuel Control of a Jet Type Gas Turbine Power Generating Unit (78-GT-43) (A) **Jl 92**

Turbine Research Module
A High Temperature Turbine Research Module (77-GT-73) (A) **Ag 105**

Turbine Rotors
A Proposed Scheme for Computer Aided Design and Manufacture of Radial Turbine Rotors (78-GT-156) (A) **Ag 115**
Transportable Lathe Speeds Nuclear Retrofit (BTR) **O 55**

Turbine Stage Efficiency
Optimizing Turbine Stage Efficiency by Selecting and Matching Reaction, Velocity Ratio, and Clearance Ratio (77-WA/FE-10) (A) **Ap 94**

Turbine Stator
Measurement of Heat-Transfer Rate to a Gas Turbine Stator (78-GT-119) (A) **Ag 110**

Turbine Uses
1978 Gas Turbine Conference and Show (NR) **Mr 60**

Turbine Vane
Cooling Characteristics of Film Cooled Turbine Vane Having Multi-Row of Ejection Holes (78-GT-21) (A) **Jl 89**

Turbines
Aerodynamic Testing of a Low Stimulus, Efficient Exhaust Hood-Industrial Turbines (77-JPGC-Pwr-2) (A) **Mr 88**
Alternative Closed-Cycle Gas Turbine System Design Considerations for Ship Propulsion Applications (78-GT-18) (A) **Jl 89**
An Analysis Procedure for the Validation of On-Site Performance Measurements of Gas Turbines (78-GT-152) (A) **Ag 115**
Analytical Investigation of Thermal Barrier Coatings for Advanced Power Generation Combustion Turbines (77-WA/Ener-13) (A) **My 95**
Annular Diffuser Performance for an Automotive Gas Turbine (78-GT-147) (A) **Ag 114**
An Automated Method for the Continuous Determination of Total Sodium in Fuel Oil (78-GT-92) (A) **Ag 107**
The Closed-Cycle Turbine—Present and Future Prospectives for Fossil and Nuclear Heat Sources (78-GT-102) (A) **Ag 108**
Combined Cycles for Operation on Coal Derived Fuels with High-Temperature Combustion Turbines (77-WA/Ener-14) (A) **My 95**
Combustion Turbines-Economic Choice (77-JPGC-GT-4) (A) **Mr 93**
The Compact Industrial Gas Turbine—Recent Technical Improvements (78-GT-41) (A) **Jl 91**
Computer Aided Design of Mixed Flow Turbines for Turbochargers (78-GT-191) (A) **S 76**
Demonstration of Ceramic Design Methodology for a Ceramic Combustor Liner (78-GT-137) (A) **Ag 113**
Design and Development of a Low Emission Combustor for a Car Gas Turbine (78-GT-155) (A) **Ag 115**
Design and Development of a Power Turbine for the Spey Gas Generator (78-GT-183) (A) **S 75**
Design of a Family of Packages for A 7500-kW Industrial Gas Turbine (78-GT-37) (A) **Jl 91**
Design of a High Efficiency Combined Cycle Electric Power Plant for Low Btu Coal-Gas (78-GT-125) (A) **Ag 111**
Designing for Reliability the Large Steam Turbine Mark II Control System (77-JPGC-Pwr-4) (A) **Mr 88**
Development and Closed-Loop Testing of High Efficiency Compressors for Use with a 7000-kW Gas Turbine (78-GT-189) (A) **Ag 117**
Development of the Garrett GTPF990—A 5000-Horsepower Marine and Industrial Gas Turbine Engine (78-GT-44) (A) **Jl 92**
Development of Gas Turbine Performance Seeking Logic (78-GT-13) (A) **Jl 88**
Development of 25,000 kW Class Two-Shaft Gas Turbine (77-Pet-43) (A) **Ja 102**
Development of a Water-Cooled Gas Turbine (78-GT-72) (A) **Jl 96**
A Digital Approach to Industrial Gas Turbine Control (78-GT-39) (A) **Jl 91**
A Digital Fuel Control System for Gas Turbines (78-GT-99) (A) **Ag 108**
Dynamic Response Testing of Gas Turbines (78-GT-31) (A) **Jl 90**
Economic Analysis of Boiler Feed Pump Drive Alternatives (77-JPGC-Pwr-8) (A) **Mr 88**
Economic Evaluation Technique of Selecting Turbines for Natural Gas Pipelines (78-GT-67) (A) **Jl 95**
The Effects of Ambient Conditions on Gas Turbine Emissions-Generalized Correction Factors (78-GT-87) (A) **Ag 106**
The Effects of Fuel Bound Nitrogen Concentration and

Water Injection on NO_x Emissions from a 75-MW Gas Turbine (78-GT-89) (A) **Ag 107**
The Effects of Smoke Suppressant and Corrosion Inhibiting Fuel Additives on the Particulate and Gaseous Emissions from a Utility Gas Turbine (78-GT-64) (A) **Ji 95**
Effects of Steam Injection on the Performance of Gas Turbine Power Cycles (78-GT-11) (A) **Ji 87**
Electronic Controls of Gas Turbine Engines in Fighting Vehicles (78-GT-48) (A) **Ji 93**
Erosion and Its Effect on a Water-Cooled Turbine (78-GT-123) (A) **Ag 111**
Evaluation of a Water-Cooled Gas Turbine Combined Cycle Plant (78-GT-77) (A) **Ag 105**
An Experimental Evaluation of a Single-Stage Water-Cooled Gas Turbine (77-JPGC-GT-2) (A) **Mr 92**
A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) (A) **Ap 94**
Fuel Flow Elements for Automotive and Small Industrial Gas Turbines (78-GT-17) (A) **Ji 88**
Full Load Tests of the 80-MW Gas Turbine V 93.2 Using a Water Brake (78-GT-68) (A) **Ji 95**
Future Prospects for Naval Propulsion Gas Turbines (78-GT-106) (A) **Ag 109**
Gas Turbine Combustor Cooling by Augmented Backside Convection (78-GT-33) (A) **Ji 90**
Gas Turbine Education and Research Programs in German Universities (78-GT-171) (A) **Ag 117**
The High Temperature Water Cooled Gas Turbine in Combined Cycle with Integrated Low Btu Gasification (77-JPGC-GT-7) (A) **Mr 93**
Hot Corrosion of Gas Turbine Components (78-GT-82) (A) **Ag 106**
Hot Corrosion in Gas Turbines (77-WA/Fu-3) (A) **My 92**
Influences on Exhaust Emissions From Automotive Gas Turbines (78-GT-85) (A) **Ag 106**
An Investigation of Turbine Erosion by Combustor Generated Carbon in a Lightweight Marine Gas Turbine (78-GT-96) (A) **Ag 107**
Long Arc Shrouding—A Reliability Improvement for Untuned Steam Turbine Blading (77-JPGC-Pwr-12) (A) **Mr 89**
A Low-Risk Approach to the High-Temperature Turbine (77-WA/Ener-10) (A) **My 94**
Manufacturing Method of Large-Size Marine High-Pressure Gears (77-DET-35) (A) **Ja 110**
Marine Gas Turbine Inlet and Exhaust Systems for the R.N. (78-GT-190) (A) **S 75**
Marine Gas Turbines in the Royal Navy 1976-1978 (78-GT-197) (A) **S 76**
A Microprocessor Based Hierarchical Control System for Gas Turbines (78-GT-124) (A) **Ag 111**
A New Approach to Planning with Gas Turbines (77-JPGC-GT-3) (A) **Mr 93**
A New Concept for the Development of Coal Burning Gas Turbines (78-GT-40) (A) **Ji 91**
Nonsteady Operational Behavior of Single-Shaft and Two-Shaft Closed-Cycle Gas Turbines (78-GT-15) (A) **Ji 86**
Nuclear Gas Turbine Power Plant Activities in the United States (77-JPGC-GT-5) (A) **Mr 93**
Open-Cycle Gas Turbine/Steam Turbine Combined Cycles with Synthetic Fuels from Coal (77-WA/Ener-9) (A) **My 94**
Operating Experience with the Gas Turbine Powered LNG/Ethylene Carrier "Lucian" (78-GT-35) (A) **Ji 91**
Operating Experience on Residual Fuel Oil with A W251 Combustion Turbine (78-GT-104) (A) **Ag 108**
Optimization Analysis of a CCGT Nuclear Power Plant with Application to the HHT 3000 MWth Commercial Plant (HHT-Project) (78-GT-16) (A) **Ji 88**
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) (A) **Ji 89**
Preliminary Design of Three Combustion Concepts to Burn Low Btu Coal Gas in a High Temperature 1600°C (3000°F) Combustion Turbine (78-GT-71) (A) **Ag 105**
Problems and Operating Experiences with Gas Turbines Burning Residual and Crude Oils (78-GT-103) (A) **Ag 108**
Prototype Tests of a New 5-MW Industrial Gas Turbine (78-GT-131) (A) **Ag 112**
A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbines (78-GT-132) (A) **Ag 112**
The Radial Turbine as a Ceramic Component (78-GT-78) (A) **S 75**
Rapid Positive Load Changes by Gas Injection in Closed Gas Turbine Cycles (78-GT-8) (A) **Ji 87**
Recent Experience on Centrifugal Compressors for Small Gas Turbines (78-GT-193) (A) **S 76**
The Reliability of Gas Turbine Powered Compressor Units (78-GT-27) (A) **Ji 90**
Requirements for Educational Gas Turbines (78-GT-76) (A) **Ag 105**
The Role of the Recuperator in High Performance Gas Turbine Applications (78-GT-46) (A) **Ji 92**
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) (A) **Ji 89**
A Simple Method for the Prediction of Wall Temperatures in Gas Turbines (78-GT-90) (A) **Ag 90**
Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) (A) **Ja 109**
Ten Years' Engineering Development in Gas Turbine Driven Natural Gas Compressor Stations (78-GT-74) (A) **Ji 96**
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) (A) **Ja 110**
Transpiration Air Protected Turbine Blades—An Effective Concept to Achieve High Temperature and Erosion Resistance for Gas Turbines Operating in an Aggressive Environment (78-GT-100) (A) **Ag 108**
Tubular Gas Turbine Recuperators (77-WA/HT-8) (A) **Ap 102**
The Turbine Fatigue and Creep Evaluator Determination of Cumulative Low-Cycle Fatigue and Creep from Steam Turbine Operational Measurements (77-JPGC-Pwr-3) (A) **Mr 88**
The Utilization of High-Temperature Gas Turbines in Integrated Coal-Derived Fuel Combined Cycles (77-WA/Ener-12) (A) **My 95**
Wide Range Operation of Advanced Low NO_x Aircraft Gas Turbine Combustors (78-GT-128) (A) **Ag 112**

Turbocharged Diesel Engines
"Alternative Engine" Components (BTR) **Ji 50**

Turbochargers
Computer Aided Design of Mixed Flow Turbines for Turbochargers (78-GT-191) (A) **S 76**
Radial Compressor Development as Dictated by the Requirements of Large Turbochargers (78-GT-187) (A) **S 75**

Turbo-Compression Machinery
Prospects for the Gas Turbine in the U.K. Gas Transmission System (78-GT-53) (A) **Ji 94**

Turboexpanders
The Application of Turboexpanders for Energy Conservation (77-Pet-17) (A) **Ja 100**
Turboexpanders for Energy Conservation **S 34**

Turbofan Engines
Advanced Turbofan Engines for Low Fuel Consumption (78-GT-192) (A) **S 76**
JT10D Engines: 25,000—35,000-lb Thrust Range (BTR) **O 51**
Making Turbofan Engines More Energy Efficient (78-GT-198) (A) **S 76**
Measurement of Emissions Variability of a Large Turbofan Aero-Engine (78-GT-75) (A) **Ag 105**
Research of the XF3-1 Turbofan Engine (78-GT-199) (A) **S 76**
A Study of Thermal Fatigue Life Prediction of Air-Cooled Turbine Blades (78-GT-63) (A) **Ji 95**
Test Procedures for Establishing the Altitude Performance of Turbofan Engines to Validate Contractual Guarantees (78-GT-42) (A) **Ji 92**

Turbojet Engines
A Rotating Stall Control System for Turbojet Engines (78-GT-115) (A) **Ag 109**

Turbomachine Annuli
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) (A) **Ag 109**

Turbomachine Blading
Dynamic Stall of An Airfoil with Leading Edge Bubble Separation Involving Time Dependent Re-Attachment (78-GT-194) (A) **S 76**

Turbomachinery
An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) (A) **Ja 114**
The Application of Foil Air Bearing Turbomachinery in Aircraft Environmental Control Systems (78-ENAs-18) (A) **N 111**
Bearing Compartment Seal Systems for Turbomachinery in Direct-Cycle HTGR Power Plants (78-GT-38) (A) **Ji 91**
A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**
Compressed Air Energy Storage Turbomachinery (78-GT-97) (A) **Ag 108**
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) (A) **Ji 95**
An Efficient, Flexible Arrangement to Generate High Quality Process or Domestic Heat in Recuperative Gas Cycle Power Plants—Application to Helium Direct Cycle Nuclear Power Plants (78-GT-55) (A) **Ji 94**
Erosion Study in Turbomachinery Affected by Coal Ash Particles (78-GT-136) (A) **Ag 113**
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) (A) **Ag 109**
Gas Turbine Education and Research Programs in German Universities (78-GT-171) (A) **Ag 117**
Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **Ji 87**
The Prospects for Lightweight Ship Propulsion Systems (78-GT-179) (A) **S 74**
The Reversed Brayton Cycle Heat Pump—A Natural Open Cycle for HVAC Applications (78-GT-60) (A) **Ji 95**
Teaching of the Fluid Mechanics of Turbomachines (78-GT-161) (A) **Ag 116**
Telemetry for Rotating Measurements on Turbomachinery (78-GT-105) (A) **Ag 108**

Turbomachinery Blades
A Computer Program for the Design of Turbomachinery Blades (78-GT-36) (A) **Ji 91**

Turbomachinery Flows
An Integrated Quasi-3D Finite Element Calculation Program for Turbomachinery Flows (78-GT-56) (A) **Ji 94**

Turboprop
Evolution of The Turboprop for High Speed Air Transportation (78-GT-201) (A) **S 77**

Turbulence
Current Meter Corrections for Turbulence (77-WA/FM-3) (A) **Ap 100**
A Numerical Investigation of Three-Dimensional Flows in a Rotating Duct by a Partially-Parabolic Procedure (77-WA/FE-7) (A) **Ap 94**
Shuttle Orbiter Water Spray Boiler (78-ENAs-17) (A) **N 112**
Through Flow Analysis of Centrifugal Compressors (78-GT-110) (A) **Ag 109**

Turbulence Intensity
Effect of Mainstream Variables on Jets Issuing From a Row of Inclined Round Holes (78-GT-138) (A) **Ag 113**
Velocity Distributions and Turbulence Intensities at Tubesheets in a Two-Pass Condenser Model (78-JPGC-NE-6) (A) **D 85**

Turbulence Measurements
Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) (A) **Ap 94**

Turbulence Scales
Turbulence Scales in a Pipe Flow with a Slightly Heated Wall (78-HT-4) (A) **O 92**

Turbulent Arcs
Model for Radiation Diagnostics in Turbulent Arcs (78-HT-13) (A) **O 93**

Turbulent Boundary Layers
Boundary Layer Calculation for Analysis and Design (77-WA/FE-25) (A) **Ap 96**
Calculation of Turbulent Boundary Layers with Tangential Slot Injection (77-WA/HT-29) (A) **Ap 104**
The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (A) **Ap 93**
An Experimental Investigation of a Three-Dimensional Turbulent Boundary Layer (77-WA/FE-22) (A) **Ap 96**
Experimental Study of Buoyant Wakes in Horizontal Flows (77-WA/HT-31) (A) **Ap 104**
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) (A) **Ag 109**
Interacting Turbulent Boundary Layer Over a Wavy Wall (77-WA/HT-28) (A) **Ap 104**
Laminar, Transitional, and/or Turbulent Three-Dimensional Boundary Layers over Arbitrary Blunt-Nosed Bodies Including Surface Curvature Effects (78-HT-23) (A) **O 94**
Natural Convection Turbulent Boundary Layers Next to Heated Vertical Surfaces (77-WA/HT-32) (A) **Ap 105**
Stabilizing and Destabilizing Effects of Coriolis Force on Two-Dimensional Laminar and Turbulent Boundary Layers (78-GT-1) (A) **Ji 87**

Turbulent Crossflow
Response of a Tube Bank Turbulent Crossflow Induced Excitation (77-DET-142) (A) **F 128**
Turbulent Flow
Computations of Three-Dimensional Gas-Turbine Combustion Chamber Flows (78-GT-142) (A) **Ag 114**
Disk Pump Performance in Turbulent Flow (77-WA/FE-26) (A) **Ap 96**
The Effects of Streamline Curvature on Reynolds Analogy (77-WA/FE-17) (A) **Ap 95**
Spectral Analogy Between Temperature and Velocity Fluctuations in Various Turbulent Flows (78-HT-2) (A) **O 92**
Turbulent Flowing Mixtures
Weak Extinction Limits of Turbulent Flowing Mixtures (78-GT-144) (A) **Ag 114**
Turbulent Gas Flow
Investigation of Heat Transfer Between an Electric Arc and a Turbulent Gas Flow in a Channel (78-HT-8) (A) **O 92**
Turbulent Heat Flux
The Structure of a Boundary Layer on a Rough Wall with Blowing and Heat Transfer (78-HT-3) (A) **O 92**
Turbulent Impinging Jet
Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**
Turbulent Inflows
Propeller Unsteady Thrust Due to Operation in Turbulent Inflows (78-GT-94) (A) **Ag 107**
Turbulent Jets
Heated Three-Dimensional Turbulent Jets (77-WA/HT-27) (A) **Ap 104**
Turbulent Natural Convection
Turbulent Natural Convection in a Horizontal Fluid Layer with Time Dependent Volumetric Energy Sources (78-HT-6) (A) **O 92**
Turbulent Shear Flow
Triple-Correlations Closure Models in an Asymmetric Heated Plane-Jet with Negative Production (78-HT-1) (A) **O 92**
Turbulent Spray Flame
Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) (A) **My 96**
Turbulent Stresses
On Prediction and Unified Correlation for Decay of Vertical Buoyant Jets (78-HT-21) (A) **O 94**
Turbulent Thermal Plume
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along Vertical Isothermal Wall (77-WA/HT-30) (A) **Ap 104**
Structure of a Turbulent Thermal Plume Rising Along an Isothermal Wall (78-HT-24) (A) **O 94**
Turnbull, S. R. An Experimental Investigation of the Dynamic Behavior of a Roller Chain Drive (77-DET-168) (A) **F 130**
Turning Vanes
A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) (A) **Ap 95**
Turteltaub, M. J. Calculation of Peak Yarn Tension During Ring-Spinning (77-Tex-6) (A) **F 132**
Tuten, J. M. Lateral Stability of Freight Cars With Axles Having Different Wheel Profiles and Asymmetric Loading (78-RT-3) (A) **O 98**
Twill, J. P. The Stability of the Three-Way Underlapped Hydraulic Spool Servovalve (77-WA/Fics-9) (A) **Ap 98**
Twin Conical Bearing Surfaces
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) (A) **Ap 92**
Twist Bending
Effect of Transverse Shearing Deformations on the Coupled Twist-Bending of Curved Beams (78-PVP-102) (A) **N 124**
Two-Dimensional Calculation Method
Compressible Flow in a Centrifugal Impeller with Separation: A Two-Dimensional Calculation Method (77-WA/FE-8) (A) **Ap 94**
Two-Dimensional Cascade
A Rational Analysis of Periodic Flow Perturbation in Supersonic Two-Dimensional Cascade (78-GT-176) (A) **S 74**
Two-Dimensional Numerical Solution
A Two-Dimensional Numerical Solution to Freezing/Melting in Cylindrical Coordinates (77-WA/HT-11) (A) **Ap 102**
Two-Pass Condenser
Velocity Distributions and Turbulence Intensities at Tubesheets in a Two-Pass Condenser Model (78-JPGC-NE-6) (A) **D 85**
Two-Phase Flow
Critical Review of Correlations for Predicting Two-Phase Flow Pressure Drop Across Tube Banks (77-WA/HT-23) (A) **Ap 104**
Developments in the Design of Shell-and-Tube Condensers (77-WA/HT-24) (A) **Ap 104**
Two-Shaft Gas Turbine
Development of 25,000 kW Class Two-Shaft Gas Turbine (77-Pet-43) (A) **Ja 102**
Two-Stage Vibration Isolators
One-Stage and Two-Stage Vibration Isolators as Applied to High-Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) (A) **F 124**
Two Taper Roller Bearings
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) (A) **F 124**
Tyler, A. L. Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) (A) **Ap 94**
Typewriter Design
WPI Student Designs Typewriter to Aid Handicapped (EN) **My 75**

U

Ueda, H. Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) (A) **F 131**
Ueno, T. Manufacturing Method of Large-Size Marine High-Pressure Gears (77-DET-35) (A) **Ja 110**. Super-Precision Single-Flank Gear Testing Machine (77-DET-118) (A) **F 126**
Uesugi, S. A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) (A) **Ja 113**
Ueyama, H. Acoustic Emission Monitoring During Rupture Test of Pressure Vessel and Laboratory Fracture Test (78-PVP-18) (A) **O 104**
UHV Demands
Components to Meet UHV Demands (ES) **N 21**
Uicker, J. J., Jr. Design Charts for Disk Cams with Reciprocating Radial Roller Followers (78-DET-36) (A) **D 91**
Ultra-High-Voltage Transmission
UHV Effects on Ecosystem (BTR) **N 66**
Ultrasonic Inspection
Metallurgical Causes of Difficulties with Ultrasonic Inspection of Austenitic Welds (78-PVP-8) (A) **O 102**
Ultrasonic Monitoring
Ultrasonic Monitoring of Growth of Part-Through Thickness Defects at 290°C (78-NE-12) (A) **N 116**
Ultrasonic Testing Systems
Remotely Operated Ultrasonic Testing System (78-NE-3) (A) **N 114**
Ultrasonic Waves
Interface Pressure Distribution in a Bolt-Flange Assembly (77-WA/DE-11) (A) **Mr 94**
Ultrasonics
Advances in Ultrasonics for Inservice Inspection (78-PVP-39) (A) **N 117**
Ultrasonic Data Acquisition, Analysis, and Display by Minicomputer Aided Techniques (77-PVP-45) (A) **Ja 108**
Ultrasound
Topical Heat Waves (BTR) **Je 61**
Unbalance Response
Steady-State Unbalance Response of a Three Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) (A) **F 124**
Undamped Vibration Systems
Decoupling of Undamped Vibration Systems (77-PVP-7) (A) **Ja 108**
Undercutting Conditions
An Analysis of Undercut Conditions and of Appearance of Contact Lines Envelope Conditions of Gears (77-DET-2) (A) **Ja 108**
Undergraduate Curriculum
Emphasis on Practical (C) **Ja 50**
Underground Combustion
Underground Combustion: Shale to Liquid Oil (BTR) **Ap 56**
Underground Gasification
Underground Gasification of Coal (IF) **N 73**
Underground Transmission Cables
A Promising New Superconductor (ES) **Jl 23**
Underground Transportation System
Mass Transit Extended (IF) **S 57**
Underlapped Hydraulic Spool Servovalve
The Stability of the Three-Way Underlapped Hydraulic Spool Servovalve (77-WA/Fics-9) (A) **Ap 98**
Undersea Systems
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) (A) **Ap 92**
Undersea Technology
Undersea Work System (BTR) **N 62**
Underwater Applications
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used In Underwater Applications (77-DET-92) (A) **F 124**
Underwater Tasks
Two-Man Submarine (BTR) **O 55**
Ungut, A. Flame Characteristics of a NASA Contra Swirler Module (78-GT-163) (A) **Ag 116**
Uniaxial Compression
A Model for Axial Splitting Under Uniaxial Compression (77-Pet-73) (A) **Ja 106**
Unicellular Algae
Optical Property Measurements for Suspensions of Unicellular Algae (78-HT-14) (A) **O 93**
Uniform Commercial Code
The Attorney: A Role in Commercial Contracting (77-IPC-1) (A) **F 133**
Uniform-Section Disk Springs
Optimum Design of Uniform-Section Disk Springs Under Various Constraints (77-WA/DE-22) (A) **Mr 96**
Uniform Surface Heat Flux
Analysis of Mixed Convection About a Sphere with Uniform Surface Heat Flux (77-WA/HT-1) (A) **Ap 101**
Unions
Regrettable Remark? (C) **Jl 41**
Unity Stand Supported (C) **Jl 41**
Unity and Unionism (C) **Je 51**
Useful Unity Overview (C) **Jl 41**
Unit Availability
Operating Economics and Unit Availability (77-JPGC-Pwr-5) (A) **Mr 88**
Unit Enclosures
Modeling and Analysis for Seismic Adequacy in Air Handling Unit Enclosures—The Effects of Structural Reinforcement (77-DET-136) (A) **F 127**
Unit Prices
Heavy Construction Cost File; 1977 Unit Prices: (CB) **F 135**
Unit Reliability
Outage Factors—An Aid to Analyzing Electric Generating Unit Reliability (77-JPGC-Pwr-9) (A) **Mr 88**
United Engineering Society
The Case for a United Engineering Society **Ap 22**
Unsteady Aerodynamic Response
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) (A) **Ag 109**
Unsteady Aerodynamics
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) (A) **F 123**
Unsteady Flow
Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **II 87**
Untuned Steam Turbine Blading
Long Arc Shrouding—A Reliability Improvement for Untuned Steam Turbine Blading (77-JPGC-Pwr-12) (A) **Mr 89**
Upadyay, P. C. On the Dynamic Expansion of a Circular Hole in an Infinite Plate (77-WA/APM-21) (A) **Je 111**
Upper Bound Analysis
Disk and Strip Forging With Side-surface Foldover: Part 1—Velocity Field and Upper Bound Analysis (77-WA/Prod-36) (A) **Je 107**; Part 2—Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) (A) **Je 107**
Limit Analysis of Hollow Disk Forging Part 1: Upper Bound (77-WA/Prod-2) (A) **My 103**
Upper-Extremity Orthosis Systems
The Kinematic and Force Analysis of Upper Extremity-Orthosis Systems (78-DET-51) (A) **D 93**
Upper Joint
A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) (A) **Ja 102**
Urabe, Y. Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**

Uranium
A Billion for Uranium Enrichment (ES) **D 14**
Uranium Enrichment
Uranium Enrichment by Gas Centrifuge (ES) **Je 18**
Uranium Fuel
Alternate Fuel Cycles in HTGR's (77-JPGC-NE-26) (A) **Mr 92**
An Alternative to the LMFBR? (ES) **F 27**
Nuclear Nonproliferation is Topic of Symposium **Jl 77**
The Uranium Enrichment Business (ES) **My 20**
Uranium Reserves
United States Uranium Position (77-JPGC-NE-25) (A) **Mr 92**
Uranium Resources
Must We Forego Plutonium? (C) **D 36**
Uranium Solution Mining
Uranium Solution Mining—State of the Art (77-Pet-47) (A) **Ja 103**
Uranus Atmosphere
Changes in Uranus Atmosphere (BTR) **N 61**
Urban Mass Transportation
Automated Urban Mass Transportation (BTR) **Ja 56**
Urban Transportation
City Traffic: A Systems Digest (CB) **Je 113**
New York's First Subway—The Makings of an Urban Institution **Ap 83**
Urinary Sphincter Control System
Urinary Sphincter Control System (BTR) **N 65**
Urine Water Recovery
A Thermoelectric Integrated Membrane Evaporation System (78-ENAs-19) (A) **N 112**
Usui, E. Analytical Prediction of Three-Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) (A) **My 103**; Part 2: Chip Formation and Cutting Force with Conventional Single Point Tool (78-WA/Prod-10) (A) **Je 104**; Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) (A) **Je 104**; A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) (A) **Je 104**
Usui, H. Cooling Characteristics of Film Cooled Turbine Vane Having Multi-Row of Ejection Holes (78-GT-21) (A) **Jl 89**
Utilities
Electric Utilities—Another Growth Year (NB) **Je 75**
Power Plant Productivity Trends and Improvement Possibilities (77-JPGC-Pwr-11) (A) **Mr 89**
Reliability of Operating Power Plants—A Utility Viewpoint (77-JPGC-Pwr-10) (A) **Mr 89**
Utility Boilers
Low NOx Combustion of Paraho Shale Oil in a 45-MW Utility Boiler (77-WA/Fu-1) (A) **My 92**
New Horizons for Utility Boilers (ES) **Ag 22**
Utility Gas Turbine
The Effects of Smoke Suppressant and Corrosion Inhibiting Fuel Additives on the Particulate and Gaseous Emissions from a Utility Gas Turbine (78-GT-64) (A) **Jl 95**
Utility Industry
Combustion Turbines-Economic Choice (77-JPGC-GT-4) (A) **Mr 93**
Inventing the Future **N 91**
A New Approach to Planning with Gas Turbines (77-JPGC-GT-3) (A) **Mr 93**
A Strained Partnership (ES) **Je 18**
Utility Power System
Technical and Economic Objectives for the Development of Advanced Combined Cycles for Use with Coal-Derived Fuels (78-GT-101) (A) **Ag 108**
Utility Rates
Of Utility Rates and Free Lunches (C) **Ap 45**
Utility Solar Research
Utilities Sponsor Solar Research (ES) **Je 18**
Utility System
Wind Power (C) **Ja 50**
U-Tube Exchanger
The Effect of Primary Head Shape on Tubesheet Thickness (78-PVP-30) (A) **O 104**
U-Tube Heat Exchangers
Study of Bolted Joint Integrity and Inter-Tube Pass Leakage in U-Tube Heat Exchangers--Part I: Analysis (77-WA/NE-6) (A) **Je 101**; Part II: Applications (77-WA/NE-7) (A) **Je 100**

V

V-Belt Mechanics
A Complementary Large Slip Solution in V-belt Mechanics (77-DET-162) (A) **F 130**
Vachon, R. I. A "No-Flow" Method for Measuring Solar Collector Performance (77-WA/Sol-5) (A) **My 97**
Vacuum Vessels
Structural Design for a 10-GWh SMES Vaccum Vessel (78-PVP-46) (A) **N 117**
Vaidyanathan, C. V. *(author)* Handbook of Machine Foundations (CB) **S 78**
Vaipayee, S. Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/Prod-1) (A) **My 102**
Valente, C. G. Corrosion Testing Under Departure from Nucleate Boiling Conditions Modeling the Clinch River Breeder Reactor Plant Steam Generator (77-JPGC-NE-8) (A) **Mr 90**
Valentin, R. A. Dynamic Plastic Response of an Immersed Pipe (77-PVP-8) (A) **Ja 107**; A Numerical Method Based on the Method of Characteristics for Two-Dimensional Fluid Transients (78-PVP-57) (A) **N 118**; Pressure Transient Analysis in Piping Systems Including the Effects of Plastic Deformation and Cavitation (78-PVP-56) (A) **N 118**
Vallerani, E. Active Thermal Control S bsystem Development (78-ENAs-6) (A) **N 110**; An Experiment Cooling Loop for Spacelab Payloads (78-ENAs-29) (A) **N 113**
Value Techniques
Research and Development Decisions Through the Use of Present Value Analysis (78-DE-2) (A) **S 72**
Valve Device
Microbial Check Valve for Shuttle (78-ENAs-27) (A) **N 112**
Valve Dynamics
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) (A) **S 74**
Valve Manufacturing Industry
Free Enterprise is Best! (ES) **O 47**
Valve Spool
The Stability of the Three-Way Under Lapped Hydraulic Spool Servovalve (77-WA/Flcs-9) (A) **Ap 98**
Valve Superstructures
A Simplified Method for Calculating the Natural Frequency of Valve Superstructures (78-PVP-4) (A) **O 102**
Valves
Analytical Approach for the Design of Fine-Metering Valves (77-WA/FE-24) (A) **Ap 96**
Design and Dynamic Performance of a Hydromechanical Impact Breaker (77-WA/Flcs-3) (A) **Ap 97**
Development of Small Sodium Valves for the Fast Flux Test Facility (77-WA/NE-13) (A) **Je 102**
Evaluation of Scale-Model Methods for Operability Qualification of Seismic Loading (77-PVP-63) (A) **Ja 108**
A New Class of Spool Valves with Built-In Dampers (78-DE-6) (A) **S 73**
On the Nonlinear Response of a Relief Valve (77-DET-81) (A) **F 122**
Surge in Motion Control, Valves, and Welding (NB) **S 59**
Van Amerongen, E. Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) (A) **F 132**
van der Werff, T. J. Unity Stand Supported (C) **Jl 41**
Van Deventer, F. M. Pollution Solution Questioned (C) **N 56**
Van Echo, J. A. Strength of 304L Stainless Steel and Inconel Alloy 601 at Temperatures Above 1000°C (78-PVP-31) (A) **O 104**
Van Hien, P. Bending Fatigue Strength of Gear Teeth Under Random Loading (77-DET-120) (A) **F 126**
Van Sciver, S. W. Heat Transfer from Aluminum to HE II—Application to Superconductive Magnetic Energy Storage (78-HT-51) (A) **O 97**
Vance, J. M. Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) (A) **Ja 109**
Vander Krogt, A. H. Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Ends (77-Pet-42) (A) **Ja 101**
Vaned Diffuser Inlet Flow
Vaned Diffuser Inlet Flow Conditions for a High Pressure Ratio Centrifugal Compressor (78-GT-50) (A) **Jl 93**
Vaneless Diffuser
Limits of Rotating Stall and Stall in Vaneless Diffuser of Centrifugal Compressors (78-GT-19) (A) **Jl 88**
Radial Vaneless Diffusers: A Re-Examination of the Theories of Dean and Senoo and of Johnston and Dean (78-GT-186) (A) **S 75**
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) (A) **Ag 115**
Vaneless Diffuser Flow
Vaneless Diffuser Flow with Extremely Distorted Inlet Profile (78-GT-47) (A) **Jl 92**
Vaneless Radial Diffusers
Experimental Investigation of Unsteady Phenomena in Vaneless Radial Diffusers (78-GT-23) (A) **Jl 89**
Vanes
Development of 25,000 kW Class Two-Shaft Gas Turbine (77-Pet-43) (A) **Ja 102**
A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) (A) **Ap 95**
Vapor
Steam Tables: Thermodynamic Properties of Water Including Vapor, Liquid, and Solid Phases (CB) **N 127**
Vapor Pressure
Energy Crisis May Have a Salt Solution (BTR) **D 42**
Vapor Scrubbing
Evolution of Radwaste Evaporators in West Germany (77-JPGC-NE-13) (A) **Mr 91**
Variable Density
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) (A) **F 133**
Variable Index Ratios
General Forms of Index Ratios and Generation of Variable Index Ratios by Series-Connected Geneva Mechanisms with Single or Multiple Driving Pins (78-DET-28) (A) **D 90**
Variable-Speed Drive
On the Kinematic and Dynamic Synthesis of a Variable-Speed Drive (77-DET-124) (A) **F 126**
Vascular Permeability
A Technique for the Measurement of Burn Induced Leakage of Macromolecules in Living Tissue (77-WA/HT-46) (A) **My 100**
Vaughan, D. A. Erosion-Corrosion Effects on Boiler Tube Metals in a Multisolids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**
Vector Loop Analysis
Vector Loop Analysis of Wankel Compressors or Engines (78-DET-1) (A) **D 87**
Vectoring Modes
Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**
Vehicle Accelerations
Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) (A) **Je 102**
Vehicle Drive Line
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) (A) **Ja 110**
Vehicle Research
Electrical Vehicle Outlook (BTR) **Je 60**
Vehicle Suspension
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) (A) **Ja 108**
Vehicular Gas Turbines
Compact Metallic and Ceramic Recuperators for Gas Turbines (78-GT-62) (A) **Jl 95**
Problems and Progress in Developing the Automotive Gas Turbine **My 40**
Velocity
Analysis of the Flow Field in a Radial Compressor (78-GT-7) (A) **Jl 87**
Column Separation as a Feedback Mechanism in Liquid Oscillators (77-WA/Flcs-4) (A) **Ap 96**
Erosion and Its Effect on a Water-Cooled Turbine (78-GT-123) (A) **Ag 111**
An Experimental Investigation of a Three-Dimensional Turbulent Boundary Layer (77-WA/FE-22) (A) **Ap 96**
Experimental Study of Buoyant Wakes in Horizontal Flows (77-WA/HT-31) (A) **Ap 104**
Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) (A) **Ja 115**
Flame Characteristics of a NASA Contra Swirler Module (78-GT-163) (A) **Ag 116**
Growth of a Perturbation in an Axial Flow Compressor (78-GT-30) (A) **Jl 90**
Investigation of Heat Transfer Between an Electric Arc and a Turbulent Gas Flow in a Channel (78-HT-8) (A) **O 92**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) (A) **Mr 86**
Steady Pressure Gradient Assisted Plane Couette Flow with Temperature Dependent Viscosity (78-HT-28) (A) **O 95**
The Structure of a Boundary Layer on a Rough Wall with

Blowing and Heat Transfer (78-HT-3) (A) **O 92**
The Three-Dimensional Flow and Blade Wake in an Axial Plane Downstream of an Axial Compressor Rotor (78-GT-66) (A) **JI 95**
Triple-Correlations Closure Models in an Asymmetric Heated Plane-Jet with Negative Production (78-HT-1) (A) **O 92**
Wind Power Prices (C) **Ap 45**

Velocity Distribution
Performance Investigations of Large Capacity Centrifugal Compressors (78-GT-3) (A) **JI 97**
Vaned Diffuser Inlet Flow Conditions for a High Pressure Ratio Centrifugal Compressor (78-GT-50) (A) **JI 93**

Velocity Distributions
Effect of Mainstream Variables on Jets Issuing From a Row of Inclined Round Holes (78-GT-138) (A) **Ag 113**
Heated Three-Dimensional Turbulent Jets (77-WA/HT-27) (A) **Ap 104**
Velocity Distributions and Turbulence Intensities at Tubesheets in a Two-Pass Condenser Model (78-JPGC-NE-6) (A) **D 85**

Velocity Field
Disk and Strip Forging with Side-surface Foldover: Part 1—Velocity Field and Upper Bound Analysis (77-WA/Prod-36) (A) **Je 107**; Part 2—Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) (A) **Je 107**
Limit Analysis of Hollow Disk Forging Part 1: Upper Bound (77-WA/Prod-2) (A) **My 103**
Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **JI 87**

Velocity Fluctuations
Spectral Analogy Between Temperature and Velocity Fluctuations in Various Turbulent Flows (78-HT-2) (A) **O 92**
Turbulence Scales in a Pipe Flow with a Slightly Heated Wall (78-HT-4) (A) **O 92**
On Velocity Fluctuation in Skew Four-Bar Mechanisms (78-DET-45) (A) **D 92**

Velocity Gradient
Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**

Velocity Measurements
Heat Transfer Augmentation Using a Corona Discharge Air Jet (78-ENAs-8) (A) **N 111**

Velocity Profile
An Axial Compressor End-Wall Boundary Layer Calculation Method (78-GT-81) (A) **Ap 105**
Thermal Development of Flow in the Entrance Region of a Channel with Periodic Boundary (78-HT-27) (A) **O 95**

Velocity Profiles
A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**
Effects of Variation in Velocity Profiles on a Simulated Submarine Pipeline (77-WA/Oce-4) (A) **Ap 92**
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) (A) **Ag 109**
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along Vertical Isothermal Wall (77-WA/HT-30) (A) **Ap 104**
Laminar Shear Layer Due to a Semi-Infinite Thin Flat Plate Oscillating with Zero Mean Velocity (77-WA/FE-16) (A) **Ap 95**

Velocity Ratio
Optimizing Turbine Stage Efficiency by Selecting and Matching Reaction, Velocity Ratio, and Clearance Ratio (77-WA/FE-10) (A) **Ap 94**

Venkatesh, V. C. On the Surface Durability of Gears (77-DET-58) (A) **Ja 113**

Vent Valves
Quiet Vent Valve Design and Airborne Noise Spectra (77-WA/Fcs-12) (A) **Ap 98**

Ventilation Rate
Heat Pipe Heat Exchangers for Solar Homes (77-WA/Sol-7) (A) **My 97**

Ventricular Wall Area
Left Ventricular Area Ratios: Comparison of the Circumferential and Longitudinal Directions and Correlation with Left Ventricular Function (77-WA/Bio-11) (A) **Ap 99**

Venturi Type Flowmeter
Acoustic Radiation from a Venturi Type Flowmeter Due to Hydrodynamic Excitation (LWBR Development Program) (77-DET-165) (A) **F 130**

Venu Vinod, P. K. On a New Model of Oblique Cutting (77-WA/Prod-6) (A) **Je 104**

Verderosa, M. A. Development of Small Sodium Valves for the Fast Flux Test Facility (77-WA/NE-13) (A) **Je 102**

Verdonk, G. Vaned Diffuser Inlet Flow Conditions for a High Pressure Ratio Centrifugal Compressor (78-GT-50) (A) **JI 93**

Vertical Buoyant Jets
On Prediction and Unified Correlation for Decay of Vertical Buoyant Jets (78-HT-21) (A) **O 94**

Vertical Isothermal Surface
Natural Convection from a Vertical Isothermal Surface IMBEDDED IN A Saturated Porous Medium (78-HT-55) (A) **O 97**

Vertical Isothermal Wall
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along Vertical Isothermal Wall (77-WA/HT-30) (A) **Ap 104**

Vertical Pump
Critical Speeds and Response of a Large Vertical Pump (78-PVP-34) (A) **O 105**

Vertical Surfaces
Natural Convection Turbulent Boundary Layers Next to Heated Vertical Surfaces (77-WA/HT-32) (A) **Ap 105**

Vertical Walls
Double-Diffusive Instability in a Density-Stratified Fluid Along a Heated Inclined Wall (78-HT-43) (A) **O 97**

Vessels
Design, Manufacture and Safety Aspects of Forged Vessels for High-Pressure Services (78-PVP-72) (A) **N 120**
A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) (A) **Ja 102**

Vestibular Function Research
Vestibular Function Research Aboard Spacelab (78-ENAs-25) (A) **N 112**

Vibrating Compressor Blade
Effect of Slip on Response of a Vibrating Compressor Blade (77-WA/GT-3) (A) **Ap 100**

Vibration
Alternative Tuned Absorbers for Steady-State Vibration Control of Tall Structures (77-DET-84) (A) **Ja 115**
Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) (A) **Ja 115**
Computer Aided Design of Mixed Flow Turbines for Turbochargers (78-GT-191) (A) **S 76**
Critical Speeds and Response of a Large Vertical Pump (78-PVP-34) (A) **O 105**
Crossflow-Induced Vibration of a Row of Circular Cylinders in Water (77-JPGC-NE-4) (A) **Mr 90**
Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-88) (A) **F 122**
Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) (A) **Mr 84**
On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) (A) **Mr 93**
Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) (A) **Ja 114**
Dynamic Analysis of Piping Systems Using Substructure (77-DET-144) (A) **F 128**
The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) (A) **Ja 111**
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/Prod-1) (A) **My 102**
An Experimental Investigation of the Dynamic Behavior of a Roller Chain Drive (77-DET-168) (A) **F 130**
Experiments on Buckling and Vibration of Superconducting Coils (77-WA/APM-28) (A) **JI 99**
Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) (A) **F 123**
Extensional and Shear Strain Damping Mechanisms in Constrained Layer Damped Vibration (77-DET-74) (A) **Ja 114**
Fluid Forces in Real Heat Exchanger Tube Vibrations (77-DET-146) (A) **F 128**
Forced Vibration of Continuous System with Nonlinear Boundary Conditions (77-DET-80) (A) **Ja 114**
The Forced Vibration of a Three-Layer Damped Circular Ring (77-DET-154) (A) **F 129**
Free Vibration of Thin Rectangular Plates by a Mixed Finite Element (77-DET-143) (A) **F 128**
Mechanically Induced Noise and Vibration in the Automotive Diesel Engine (77-DET-37) (A) **Ja 110**
Noise Radiated from Hydraulic Circuits (78-DE-23) (A) **O 92**
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) (A) **Ja 108**
The Prediction of Passenger Riding Comfort from Acceleration Data (77-WA/Aut-6) (A) **Je 102**
Rotational Vibration With Backlash: Part 1 (77-DET-105) (A) **F 124**
On the Torsional Vibration of Branched Systems Using Extended Transfer Matrix Method (77-WA/DE-4) (A) **Mr 93**
Transverse Vibrations of Cantilever Beams Having Unequal Breadth and Depth Tapers (77-WA/APM-19) (A) **JI 98**
Vibration of Beams Carrying Discrete Dampers and Masses (77-WA/DE-7) (A) **Mr 94**
Vibration and Noise Reduction of Beams and Plates by Use of Boundary Damping and Stiffness (77-DET-155) (A) **F 129**
Vibration of Cantilever Sandwich Beams (78-DE-20) (A) **O 92**
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) (A) **Ja 114**
Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) (A) **Ja 114**
Vibration of a Heat Exchanger Tube/Support Impact (77-JPGC-NE-5) (A) **Mr 90**
Vibrations in Very High Pressure Centrifugal Compressors (77-DET-15) (A) **Ja 106**
Wide-Band Random Vibration of Circular Plates (77-DET-97) (A) **F 123**

Vibration Absorbers
Beamlike Dynamic Vibration Absorbers (77-DET-176) (A) **F 131**

Vibration Absorption
The Horizontal Plate Filter as a Torsional Vibration System with Vibration Absorption (77-DET-86) (A) **F 123**

Vibration Analysis
Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) (A) **Ja 115**

Vibration Diagnostics
Turbine Engine Automated Trim Balancing and Vibration Diagnostics (78-GT-129) (A) **Ag 112**

Vibration Isolators
One-Stage and Two-Stage Vibration Isolators as Applied to High-Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) (A) **F 124**

Vibration Measurements
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) (A) **Ag 110**

Vibration Neutralizer
Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) (A) **F 123**

Vibration-Rotation Bands
Comparison of Analytical Model with Approximate Models for Total Band Absorption and its Derivative (78-HT-15) (A) **O 93**

Vibration Systems
Decoupling of Undamped Vibration Systems (77-PVP-7) (A) **Ja 108**

Vibration Testing
Forced Vibration Testing of a Nuclear Fuel Assembly (77-DET-141) (A) **F 128**

Vibrational Behavior
Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-GT-185) (A) **S 75**

Vibrational Exciting Force
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) (A) **Ja 114**

Vibrations
Analysis of Roller/Ball Bearing Vibrations (77-WA/DE-5) (A) **Mr 94**
Critical Speeds, Stability, and Response of a Geared Train of Rotors (77-DET-30) (A) **Ja 110**
Cross Flow Induced Vibrations in a Tube Bank (78-PVP-25) (A) **O 104**
Experimental and Analytical Investigation of Self- Excited Chatter Vibrations in Metal Cutting (77-DET-156) (A) **F 129**
Flexural Vibrations of Rotating Electromagnetic Shields (77-WA/DE-15) (A) **Mr 95**
Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) (A) **F 122**
Predicting Sonic Vibration in Cross Flow Heat Exchangers—Experience and Model Testing (77-WA/DE-28) (A) **Mr 96**
Propeller Unsteady Thrust Due to Operation in Turbulent

Inflows (78-GT-94) (A) **Ag 107**
Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) (A) **Mr 95**
A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) (A) **Ja 109**
Study of the Vibrations of Rotating Blades (77-DET-147) (A) **F 129**
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) (A) **Ja 110**
Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) (A) **Ja 114**
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) (A) **Ja 110**
Vibration of Beams and Plates with Edges Elastically Mounted Masses (77-DET-87) (A) **F 122**
Vibrations in Very High Pressure Centrifugal Compressors (77-DET-15) (A) **Ja 108**
Vibrations and Vibrationless Rotation-Reciprocation Internally Geared Device, and on Vibrationless Chain Saw Utilizing This Device (77-DET-157) (A) **F 129**

Vibratory Behavior
Experimental Study by Radio Link-Telemetry of the Vibratory Behavior of the Blades of a Steam Turbine in Working Conditions (77-DET-148) (A) **F 128**

Vibratory Oscillations
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) (A) **S 72**

Vibratory Power
Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-68) (A) **Ja 105**

Vibro-Impact Responses
Vibro-Impact Responses of a Tube with Tube-Baffle Interaction (78-PVP-20) (A) **O 103**

Victor Manipulations
Tracking and Shadowing Models for Solar Collection Systems (77-WA/Sol-8) (A) **My 97**

Video Consoles
Control Room of Future: CRT's Supplant Analog Displays (BTR) **F 55**

Vieillard-Baron, B. Properties of a Special A 387gr5 Steel (77-Pet-59) (A) **Ja 104**

Vijay, D. K. Structural Design of Piping for CANDU Nuclear Stations (78-NE-1) (A) **N 114**

Ville, J.P. Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) (A) **Jl 89**

Viscoelastic Effects
Flat Belt Dynamics, Including Viscoelastic Effects (77-DET-166) (A) **F 130**

Viscoelastic Fluids
An Investigation Into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) (A) **Mr 86**

Viscoelastic Tapered Cantilevers
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used In Underwater Applications (77-DET-92) (A) **F 124**

Viscosity
Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) (A) **F 132**
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) (A) **F 133**

Viscous Blade-to-Blade Flow
A Calculation Method for Incompressible Viscous, Blade-to-Blade Flow Through Radial Turbomachines With Log-Spiral Blade Surfaces (78-GT-195) (A) **S 76**

Viscous-Damped Jet Engine
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) (A) **Ag 109**

Viscous Flow
Flow in an Annular Axial-Radial Diffuser (78-GT-133) (A) **Ag 112**

Viscous Heating
Steady Pressure Gradient Assisted Plane Couette Flow with Temperature Dependent Viscosity (78-HT-28) (A) **O 95**

Viscous Properties
An Orthmorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) (A) **Je 107**

Vision System
Computer Vision (BTR) **Ja 57**

Viskanta, R. Experiments on the Role of Natural Convection and Heat Source Arrangement in the Melting of a Solid (78-HT-47) (A) **O 97**

Visualization
Real-Time Force Line Visualization: Bioengineering Applications (77-WA/Bio-6) (A) **Mr 97**

Vitreous Surgery
Instrument Design for Vitreous Surgery Via the Pars Plana (77-WA/Bio-1) (A) **Mr 97**

Vliet, G. C. Periormance of Rotary Bed Silica Gel Solid Desiccant Dryers (78-HT-36) (A) **O 95**

Vogt, R. L. Preliminary Design of Three Combustion Concepts to Burn Low Btu Coal Gas in a High Temperature 1600°C (3000°F) Combustion Turbine (78-GT-71) (A) **Ag 105**

Volland, E. E. Control of Nuclear Fuel Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**

Volumetric Energy Sources
Turbulent Natural Convection in a Horizontal Fluid Layer with Time Dependent Volumetric Energy Sources (78-HT-6) (A) **O 92**

von Schwerdtner, O. Investigation of an Axial Flow Compressor with Variable Reynolds Number and Inlet Casing Geometry (78-GT-185) (A) **S 75**

Vorhees, W. G. Theory of Linear Continuous Extrusion Linex (77-WA/Prod-17) (A) **Je 105**

Vortex Induced Oscillations
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) (A) **F 123**

Vortex Wind Power
On Vortex Wind Power (77-WA/FE-20) (A) **Ap 96**

Vu, D. M Model for Radiation Diagnostics in Turbulent Arcs (78-HT-13) (A) **O 93**

V/STOL Aircraft
Development of an Inlet for a Tilt Nacelle Subsonic V/STOL Aircraft (78-GT-121) (A) **Ag 111**

W

Waal, J. C. Modal Summing Rules for Seismic Qualification (78-PVP-32) (A) **O 105**

Wagner, J. H. Periodically Unsteady Flow in an Imbedded Stage of a Multistage, Axial-Flow Turbomachine (78-GT-6) (A) **Jl 87**

Wake
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) (A) **Ag 109**

Wake Profile
Profile Loss Characteristics and Heat Transfer of Full Coverage Film-Cooled Blading (78-GT-98) (A) **Ag 108**

Wake Velocity Deflect
The Three-Dimensional Flow and Blade Wake in an Axial Plane Downstream of an Axial Compressor Rotor (78-GT-66) (A) **Jl 95**

Wakes
Experimental Study of Buoyant Wakes in Horizontal Flows (77-WA/HT-31) (A) **Ap 104**

Waldham, B. I. Registration (C) **Ja 51**

Waldron, N. E. P. A High Temperature Turbine Research Module (77-GT-73) (A) **Ag 105**

Waldron, K. J. Elimination of Branch, Grashof, and Order Defects in Path-Angle Generation and Function Generation Synthesis (78-DET-16) (A) **D 89**; Joint Displacements in Linkage Synthesis Solutions (78-DET-43) (A) **D 92**

Walker, B. H. A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) (A) **Ja 103**

Walker, C. J. An Automatic Blending and Injection System for Tertiary Oil Recovery by Chemical Flooding (77-Pet-44) (A) **Ja 103**

Walker, G. The Internally Insulated Liquid Natural Gas Pipeline for Arctic Gas Recovery (77-WA/HT-17) (A) **Ap 103**

Walking Cycle
Determining Muscle Forces in the Leg During Normal Human Gait-An Application and Evaluation of Optimization Methods (77-WA/Bio-9) (A) **Ap 98**

Wall Cooling
Gas Turbine Combustor Cooling by Augmented Backside Convection (78-GT-33) (A) **Jl 90**

Wall Fluctuations
Enhancement Mechanism of Mass Transfer in a Turbulent Impinging Jet for High Schmidt Numbers (78-HT-5) (A) **O 92**

Wall Friction Loss
Effects of Fluid Leakage on Performance of a Centrifugal Compressor (78-GT-143) (A) **Ag 114**

Wall Heat Flux
An Analysis of Nonsimilar Boundary Layer Containing Liquid-Droplets Over a Heated Circular Cylinder (78-HT-20) (A) **O 94**

Wall Ironing
A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) (A) **Je 104**

Wall Suction
Spectral Analogy Between Temperature and Velocity Fluctuations in Marious Turbulent Flows (78-HT-2) (A) **O 92**

Wall Temperature
Effective Thermal Diffusivity for a Two-Layer Composite Wall Subject to Periodic Boundary Conditions (77-WA/Sol-10) (A) **My 98**
Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (77-WA/HT-4) (A) **Ap 101**
The Longitudinal Water Boundary Layer Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**
Periodic Temperature of a Finite Wall Subjected to Periodic Heat Flux and Exposed to a Fluid with Periodic Temperature Variation (77-WA/Sol-6) (A) **My 97**
Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) (A) **O 96**

Wall Temperatures
A Simple Method for the Prediction of Wall Temperatures in Gas Turbines (78-GT-90) (A) **Ag 107**

Wall Thickness
Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) (A) **Mr 86**

Wall-Wake Flows
Calculation of Turbulent Boundary Layers with Tangential Slot Injection (77-WA/HT-29) (A) **Ap 104**

Wallace, F. J. Computer Aided Design of Mixed Flow Turbines for Turbochargers (78-GT-191) (A) **S 76**

Walls
Pump-Induced Acoustic Pressure Distribution in an Annular Cavity Bounded by Rigid Walls (78-PVP-69) (A) **N 120**

Walsh, D. J. Determination of Stress Intensification Factors for the Code Qualification of Integrally Reinforced Branch Connections (78-PVP-99) (A) **N 123**

Walsh, J. S. Where Credit is Due (C) **Ag 50**

Walston, W. H., Jr. A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) (A) **Ap 95**

Walter, G. H. An Analytical Approach for Establishing Case Depth Requirements in Carburized Gears (77-DET-152) (A) **F 129**

Wambsganss, M. W. Vibration of a Heat Exchanger Tube's Support Impact (77-JPGC-NE-5) (A) **Mr 90**

Wang, C. C. Rotational Vibration With Backlash: Part 1 (77-DET-105) (A) **F 124**

Wang, C. Y. A Coupled Eulerian-Lagrangian Method for Analyzing Nonlinear Fluid-Structure Interaction Transient in Reactors (78-PVP-58) (A) **N 119**

Wankel Machinery
Vector Loop Analysis of Wankel Compressors or Engines (78-DET-1) (A) **D 87**

Wantanabe, I. Effects of Fluid Leakage on Performance of a Centrifugal Compressor (78-GT-143) (A) **Ag 114**

Watanabe, T. Forced Vibration of Continuous System with Nonlinear Boundary Conditions (77-DET-80) (A) **Ja 114**

Ward, R. M. Jet Partitioned Fluid Amplifiers (77-WA/Fics-2) (A) **Ap 97**

Ward, T. M. Cash Flow and the Analysis of Capital Investments (77-WA/Mgt-3) (A) **My 96**

Ware, M. E. *(author)* Making of the Motor Car (CB) **Jl 100**

Warm-Air Blower
A New Light-Weight Warm-Air Blower for Rapidly Pre-Heating Cold-Soaked Equipment (77-WA/HT-20) (A) **Ap 103**

Warmth Index
How Warm is That Coat? (NB) **Ap 72**

Warren, W. B. Deep Water Positioned Measuring System for Dynamically Positioned Ships (77-Pet-39) (A) **Ja 102**

Warzee, G. An Integrated Quasi-3D Finite Element Calculation Program for Turbomachinery Flows (78-GT-56) (A) **Jl 94**

Washed Coal
An Economic Evaluation of Washed Coal for the Four Corners Generating Station (77-WA/CD-2) (A) **My 101**
Wassell, A. B. The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) (A) **Ag 106**
Wastage
Erosion-Corrosion Effects on Boiler Tube Metals in a Multisolids Fluidized-Bed Coal Combustor (77-WA/CD-1) (A) **My 101**
Waste Disposal
The Canadian Development Program for Conditioning CANDU Reactor Wastes for Disposal (78-NE-18) (A) **N 116**
Garbage Incineration Plant (IF) **Ap 64**
Mineral Waste Disposal Options (NB) **My 72**
NSPE Urges Action on Nuclear Waste Disposal (NB) **N 79**
Progress in Nuclear Waste Disposal (ES) **Je 18**
Success of a Big Flop (BTR) **Mr 52**
"Waste" Not (C) **My 53**
Whither Nuclear Waste? (NB) **Ag 74**
White House Study Glum on Nuclear Waste Disposal (NB) **N 79**
Waste Gases
Fume Formation in Ammonia Scrubbers (77-WA/APC-1) (A) **My 101**
Waste Heat
Capturing Energy from Industrial Waste Heat **Ag 30**
U.S. Army Recycles Heat-and Dollars (BTR) **Ja 59**
Waste Heat Recovery
The Gas Turbine Waste Heat Recovery System and the U.S. Navy (78-GT-170) (A) **Ag 116**
Too Little Too Late? (C) **N 56**
Waste Heat Recycling System
Waste Heat Recycling System Replaces Gas Boiler (BTR) **N 67**
Waste Liquids
A Thermoelectric Integrated Membrane Evaporation System (78-ENAs-19) (A) **N 112**
Waste Management
Garbage and Government (WW) **O 74**
Waste Materials
Combustion of Coal and Waste Materials (CB) **F 136**
Waste Processing Conference
Waste Processing Conference Stresses Energy Conservation **Mr 75**
Waste Repository
What to do with Nuclear Waste (ES) **Ji 23**
Waste Solids
Methane from Manure (ES) **Ji 22**
Waste Storage
Studying Nuclear Waste Storage (EN) **O 69**
Waste Treatment Plant
Solid Waste Treatment Plant (IF) **Ji 54**
Waste Tritium Cleanup
Waste Tritium Cleanup for the Tokamak Fusion Test Reactor (TFTR) (78-JPGC-NE-15) (A) **D 86**
Wastes
Find Hanford Wastes Not Hazardous (BTR) **Je 55**
Operating Experience and Advanced Technique in Liquid Radwaste Processing (77-JPGC-NE-17) (A) **Mr 91**
United States Uranium Position (77-JPGC-NE-25) (A) **Mr 92**
Watanabe, I. Stabilizing and Destabilizing Effects of Coriolis Force on Two-Dimensional Laminar and Turbulent Boundary Layers (78-GT-1) (A) **Ji 87**
Watanabe, M. An Experimental Investigation of Cavitating Inducer Instability (77-WA/FE-14) (A) **Ap 95**
Watanabe, T. A Quasi-Three Dimensional Analysis of Choking Flow for Radial Gas Turbines (78-GT-132) (A) **Ag 112**
Water
Crossflow-Induced Vibration of a Row of Circular Cylinders in Water (77-JPGC-NE-4) (A) **Mr 90**
Potential Improvement of Solar Pond Efficiency by Downward Convection (77-WA/HT-6) (A) **Ap 102**
Rock Breakage with Pulsed Water Jets (77-Pet-78) (A) **Ja 106**
Steam Tables: Thermodynamic Properties of Water Including Vapor, Liquid, and Solid Phases (CB) **N 127**
Thermal Conductivity of Water and Steam **Ag 46**
Well-Hole Temperature Distribution in the Presence of Aquifers—A Parametric Study (77-Pet-76) (A) **Ja 106**
Water Additive
New Way to Increase Mileage (NB) **My 72**
Water-Based Forging Lubricants
Attributes of an Ideal Water-Base, Nonpolluting Hot Forging Lubricant (77-Lub-33) (A) **Mr 87**
Water Boundary Layers
The Longitudinal Water Boundary Layer Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**
Water Brake
Full Load Tests of the 80-MW Gas Turbine V 93.2 Using a Water Brake (78-GT-68) (A) **Ji 95**
Water Chemistry
The Effects of Water Chemistry on the Reliability of Modern Large Steam Turbines (78-JPGC-Pwr-7) (A) **D 83**
Water Column
Column Separation as a Feedback Mechanism in Liquid Oscillators (77-WA/Flcs-4) (A) **Ap 96**
Water-Conserving Cooling Systems
Cutting Cooling Costs (ES) **D 14**
Water-Cooled Anodes
Critical Steady-State Heat Fluxes Causing Melting or Evaporation of the Anode in a High Intensity Arc (78-HT-10) (A) **O 93**
Water-Cooled Beds
Natural Convection Heat Transfer in Beds of Inductively Heated Particles (77-WA/HT-2) (A) **Ap 101**
Water-Cooled Copper Tube
Effects of Joule Heating on Plasma Heat Transfer (78-HT-11) (A) **O 93**
Water Cooled Gas Turbine
Development of a Water-Cooled Gas Turbine (78-GT-72) (A) **Ji 96**
Evaluation of a Water-Cooled Gas Turbine Combined Cycle Plant (78-GT-77) (A) **Ag 105**
An Experimental Evaluation of a Single-Stage Water-Cooled Gas Turbine (77-JPGC-GT-2) (A) **Mr 92**
The High Temperature Water Cooled Gas Turbine in Combined Cycle with Integrated Low Btu Gasification (77-JPGC-GT-7) (A) **Mr 93**
Water-Cooled Turbine
Erosion and Its Effect on a Water-Cooled Turbine (78-GT-123) (A) **Ag 111**
Water Cooling
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) (A) **Ji 90**
Water Crisis
Utah Governor Discusses Water Crisis (NB) **Mr 65**
Water Electrolysis System
Water Electrolysis System: H_2 and O_2 Generation (78-ENAs-3) (A) **N 110**
Water Filtration
ASME Urges EPA to Go Slowly on Drinking Water Filtration (NR) **D 52**
Water Flow Control
Analytical Approach for the Design of Fine-Metering Valves (77-WA/FE-24) (A) **Ap 96**
Water/Fuel Separators
A Combined System of Fuel Washing Involving Both Centrifuges and Electrostatic Separators—A Hybrid (78-GT-130) (A) **Ag 112**
Water Heating
Design of High-Efficiency Flat Plate Solar Collectors for Space and Water Heating (78-DE-7) (A) **S 73**
New Stainless Steel Solar Collector (IF) **Je 64**
Water Injection
The Effects Of Fuel Bound Nitrogen Concentration and Water Injection on NO_x Emissions from a 75-MW Gas Turbine (78-GT-89) (A) **Ag 107**
Water Jets
High Energy Water Jet Cutting Equations for Wood (77-WA/Prod-18) (A) **Je 104**
Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) (A) **Je 107**
Water Layer Formation
Heat Transfer and Onset of Convection in a Melted Water Layer (78-HT-41) (A) **O 97**
Water Pools
Fluid-Structure Interaction Calculations for Cylinders Impacting a Water Pool (78-PVP-59) (A) **N 119**
Water Position
Deep Water Position Measuring System for Dynamically Positioned Ships (77-Pet-39) (A) **Ja 102**
Water Pressure
Morrison and Parry Seals for Water Pressures up to 345 MPa (78-PVP-13) (A) **O 103**
Water Production
Limitations on Water Production in the Iron-Catalyzed Bosch Process (78-ENAs-4) (A) **N 110**
Water Pump
Sun Power for the Pumps of Africa (BTR) **O 53**
Water Quality
Control of Nuclear Fuel Storage Basin Water Quality by Use of Powdered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**
Water Reactors
Dynamic Analysis of a Pressurized Water Reactor Coolant System Subjected to Postulated Loss-of-Coolant Accident Transient Loads (77-WA/DE-23) (A) **Mr 98**
Non-Linear Lateral Mechanical Response of Pressurized Water Reactor Fuel Assemblies (77-WA/DE-18) (A) **Mr 95**
Thermal-Hydraulic Performance of a Consolidated Nuclear Steam Generator (CNSG) Module (77-JPGC-NE-2) (A) **Mr 89**
Transient Response of a Once-Through PWR Steam Generator (77-JPGC-NE-1) (A) **Mr 89**
Water Separation Systems
F-18 Air Conditioning System (78-ENAs-23) (A) **N 112**
Water Spray Boiler
Shuttle Orbiter Water Spray Boiler (78-ENAs-17) (A) **N 112**
Water Systems
Microbial Check Valve for Shuttle (78-ENAs-27) (A) **N 112**
Thermal Design Criteria for Solar Hot Water Systems in Tropical Climates (78-HT-37) (A) **O 95**
Water Temperature
Longitudinal Vortices in a Horizontal Boundary Layer in Water Including the Effects of the Density Maximum at 4 °C (78-HT-25) (A) **O 94**
Water Treatment Processes
Optical Property Measurements for Suspensions of Unicellular Algae (78-HT-14) (A) **O 93**
Water Tunnel
Current Meter Corrections for Turbulence (77-WA/FM-3) (A) **Ap 100**
Water Vapor
Evolution of Radwaste Evaporators in West Germany (77-JPGC-NE-13) (A) **Mr 91**
Water Waves
Water Waves in a Nonhomogeneous Incompressible Fluid (77-WA/APM-27) (A) **Ji 99**
Waterless Coal Slurry
Methacoal—Waterless Coal Slurry (BTR) **Ap 47**
Waterman, N. A. The Influence of Market Research on Product Design and Materials Selection (78-DE-3) (A) **S 72**
Watkins, C. B. Laminar Shear Layer Due to a Semi-Infinite Thin Flat Plate Oscillating with Zero Mean Velocity (77-WA/FE-16) (A) **Ap 95**
Watson, E. H. Thoughts on a Code of Practice for Forged High Pressure Vessels of Monobloc Design (78-PVP-62) (A) **N 119**
Watson, J. D. Tool Life Distribution: Part 3—Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) (A) **Je 108**; Part 4—Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) (A) **Je 108**
Watson, R. B. Meritorious Metroliners (C) **My 50**
Wave Equations
Integrable Generalized Wave Equations Exhibiting a Hypoelastic Compressible Rate-Sensitive Material Flow (77-WA/APM-2) (A) **Je 111**
Wave Loading
Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) (A) **Ja 115**
Wave Speeds
A Self-Consistent Approach to Multiple Scattering by Elastic Elipsodial Inclusions (77-WA/APM-25) (A) **Ji 98**
Waves
Electrical Generator Uses Ocean Waves (BTR) **Je 53**
On Harmonic Waves in Layered Composites (77-WA/APM-30) (A) **Ji 99**
Peristaltic Pumping by a Lateral Bending Wave (77-WA/Bio-12) (A) **Ap 99**
Wavy Wall
Interacting Turbulent Boundary Layer Over a Wavy Wall (77-WA/HT-28) (A) **Ap 104**
Wayner, P. C., Jr. An Evaporating Ethanol Meniscus: Part 1—Experimental Studies (78-HT-29) (A) **O 95**
Weak Extinction Limits
Weak Extinction Limits of Turbulent Flowing Mixtures (78-GT-144) (A) **Ag 114**
Weapon Development
Deadly Precision with Laser Weapon System (BTR) **N 63**

Weapon System
Reducing Costs With Coordinated Advanced Design and Production Techniques (78-DE-9) (A) **S 72**
Zaps Low Sneak Attack (BTR) **Je 64**
Weapons Systems
Time-Phased Development Methodology-The Key For Reliable Engines In Future Military Aircraft Weapons Systems (78-GT-167) (A) **Ag 116**
Wear
Analytical Prediction of Three-Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) (A) **Je 104**
Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/Prod-27) (A) **Je 106**
Flank Wear Model of Cutting Tools Using Control Theory (77-WA/Prod-20) (A) **Je 105**
Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) (A) **Mr 86**
A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) (A) **Ja 103**
A Technique for Assessing the Running Life of Thermoplastic Conveyor Chains (77-DET-160) (A) **F 129**
Wear of Gears of Double Circular-Arc Tooth-Profile (77-DET-59) (A) **Ja 113**
Wear Measurement
Radioactive Wear Measuring (IF) **Je 65**
Wear Problems
Review of Wear Problems in the Computer Industry (77-Lub-4) (A) **F 132**
Wear-Related Topography
Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) (A) **Ja 113**
Wear Test
Wear Test on Coupler Carrier Wear Plates (77-WA/RT-8) (A) **Mr 84**
Weather Conditions
Ionosphere Probe for Ice Age Clues (BTR) **O 48**
Weather Data
The Effect of the Certain Major Parameters on the Annual Effectiveness of Solar Systems for Residential Dwellings (77-WA/Sol-3) (A) **My 97**
Thermal Design Criteria for Solar Hot Water Systems in Tropical Climates (78-HT-37) (A) **O 95**
Weather Records
Voice-Output Solar Energy Reporter (BTR) **S 50**
Weather Reporting
Going Celsius by Degrees (NR) **O 66**
Weather Stations
Solar Cells Now Power Weather Stations (BTR) **Ap 54**
Weathering Effect
Effect of Weathering and Submersion in Seawater on the Mechanical Properties of Acrylic Plastic (77-WA/Oce-5) (A) **Ap 92**
Weatherit, P. F. The Reliability of Gas Turbine Powered Compressor Units (78-GT-27) (A) **Ji 90**
Weaver, D. S. Cross Flow Induced Vibrations in a Tube Bank (78-PVP-25) (A) **O 104**
Webb, P. Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) (A) **Ap 98**
Weber, H. E. Boundary Layer Calculation for Analysis and Design (77-WA/FE-25) (A) **Ap 96**
Webster, J. Thermal Stress Effects and Surface Cracking Associated With Laser Use on Human Teeth (77-WA/Bio-3) (A) **Mr 97**; (77-WA/HT-44) (A) **My 100**
Webster, W. D. Finite Element Analysis of Bourdon Tubes (79-PVP-67) (A) **N 119**
Weck, M. Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) (A) **Ja 112**
Wedge Displacements
Dynamic Finite Element Analysis of Two Compact Specimens (78-Mat-17) (A) **O 100**
Wedlock, M. I. Measurement of Emissions Variability of a Large Turbofan Aero-Engine (78-GT-75) (A) **Ag 105**
Wedman, L. N. A Pulsed Homopolar Machine with Superconducting Field Coils (77-WA/HT-35) (A) **My 99**
Wei, B. C. Core Mechanics and Configuration Behavior of Advanced LMFBR Core Restraint Concepts (78-PVP-49) (A) **N 118**
Weidenhamer, G. H. Acoustic Radiation from a Venturi Type Flowmeter Due to Hydrodynamic Excitation (LWBR Development Program) (77-DET-165) (A) **F 130**
Weigelt, H. *(author)* City Traffic: A Systems Digest (CB) **Je 113**
Weil, J. M. Who Will Accept Responsibility? (C) **Ji 42**
Weinberg, L. An Experimental Evaluation of the Flow Distribution in the CRBRP Modular Steam Generator (77-JPGC-NE-12) (A) **Mr 91**
Weiner, D. Nonlinear Digital Simulation and Minimum Fuel Control of a Jet Type Gas Turbine Power Generating Unit (78-GT-43) (A) **Ji 92**
Weiner, J. S. *(editor)* Human Factors in Work, Design and Production, (Case Studies in Ergonomics Practice, Vol. 1) (CB) **Ja 116**
Weingart, M. Waste Tritium Cleanup for the Tokamak Fusion Test Reactor (TFTR) (78-JPGC-NE-15) (A) **D 86**
Weisel, M. P. Avoiding Corrosion of Steam Turbine Components During Erection and Layup (78-JPGC-Pwr-5) (A) **D 83**
Weisgerber, J. The Turbine Fatigue and Creep Evaluator Determination of Cumulative Low-Cycle Fatigue and Creep from Steam Turbine Operational Measurements (77-JPGC-Pwr-3) (A) **Mr 88**
Weissmann, G. F. A Simple Test of the Effectiveness of Stress Relief Annealing Spring Materials (77-WA/DE-21) (A) **Mr 95**
Welch, A. J. Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation (77-WA/HT-45) (A) **My 100**
Welch, W. P. Long Arc Shrouding—A Reliability Improvement for Untuned Steam Turbine Blading (77-JPGC-Pwr-12) (A) **Mr 89**
Weldbonded Structures
Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) (A) **Je 110**
Welded Pipelines
Stress Corrosion Crack Growth and Fracture Predictions for BWR Piping (78-Mat-23) (A) **O 101**
Welding
Dual Laser Welding System (BTR) **Ap 48**
Explosion Welding **My 28**
The Merrick "Hot Piper" Automated Pipe Welding System (77-Pet-62) (A) **Ja 104**
Patent Issue Issue in May Issue (C) **Ag 49**
Surge in Motion Control, Valves, and Welding (NB) **S 59**
What Designers Should Know About Laser Welding and Cutting **Je 44**
Weldments
Metallurgical Causes of Difficulties with Ultrasonic Inspection of Austenitic Welds (78-PVP-8) (A) **O 102**
On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) (A) **O 98**
Welds
Computation of Residual Stresses Due to Multipass Welds in Piping Systems (78-PVP-104) (A) **N 124**
Flaw Tolerance Evaluation of Heat Affected Zones (78-Mat-14) (A) **O 100**
An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) (A) **O 101**
Weld Deposits
Significance of Delta Ferrite Content to Fatigue Crack Growth Resistance of Austenitic Stainless Steel Weld Deposits (78-PVP-9) (A) **O 102**
Weld Metal
Effects of Irradiation on A508 Class 2 and 3 Forging Grade Steels (78-Mat-21) (A) **O 101**
Weld Repairs
Hait-Bead Weld Repairs for In-Service Applications (78-PVP-10) (A) **O 102**
Welbourn, D. B. Gear Noise Spectra—A Rational Explanation (77-DET-38) (A) **Ja 111**
Welkowitz, W. *(author)* Engineering Hemodynamics: Application to Cardiac Assist Devices (CB) **My 106**
Well-Hole Temperature Distribution
Well-Hole Temperature Distribution in the Presence of Aquifers—A Parametric Study (77-Pet-76) (A) **Ja 106**
Well Life Extension
Extending the Life of Geothermal Wells (ES) **Je 19**
Wells, N. S. Pre-service and In-service Inspection-Research and Development in Support of the Canadian Nuclear Power Program (78-PVP-23) (A) **O 104**
Wendt, P. G. Development and Closed-Loop Testing of High Efficiency Compressors for Use with a 7000-kW Gas Turbine (78-GT-189) (A) **Ag 117**
Wentz, K. R. Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) (A) **Je 110**
Werle, M. J. Interacting Turbulent Boundary Layer Over a Wavy Wall (77-WA/HT-28) (A) **Ap 104**
Wesenberg, D. L. Dynamic Fracture of 6061-T6 Aluminum Cylinders (77-WA/APM-14) (A) **Ji 97**
Wessling, F. C. Periodic Temperature of a Finite Wall Subjected to Periodic Heat Flux and Exposed to a Fluid with Periodic Temperature Variation (77-WA/Sol-6) (A) **My 97**
Westcott, V. C. Contamination in Lubrication Systems (77-WA/Lub) (A) **Ji 96**
Westermann, E. L. Thermal Response of Slabs Subjected to Nonsymmetric Convective Heat Transfer (78-DE-8) (A) **S 72**
Westervelt, W. W. Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) (A) **F 124**
Westmoreland, J. S. A Low-Risk Approach to the High-Temperature Turbine (77-WA/Ener-10) (A) **My 94**; Second-Generation Integrated Coal Gasification/Combined-Cycle Power System (78-GT-14) (A) **Ji 88**
Westover, J. B. Food Packages for Space Shuttle (78-ENAs-13) (A) **N 111**
Wetenkamp, H. R. Thermal Damage and Rail Load Stresses in a 33-In. Railroad Car Wheel (77-WA/RT-2) (A) **Mr 84**
Weth, G. Design of a Pressurized Fluid Bed Coal Fired Combined Cycle Electric Power Generation Plant (78-GT-135) (A) **Ag 113**
Wet Finned Heat Exchanger
Approximate Analysis of Heat Transfer from the Surface of a Wet Finned Heat Exchanger (78-HT-26) (A) **O 94**
Wet-Gas Pipelines
A New Approach to the Design of Wet-Gas Pipelines (77-Pet-14) (A) **Ja 100**
Wet-Scrubbing Process
TVA's Cocurrent Scrubber Evaluation (77-WA/APC-8) (A) **My 102**
Wheaton, F. W. *(author)* Aquicultural Engineering (CB) **Je 113**
Wheel Profile
Hunting Stability of the Three-Axle Locomotive Truck (78-RT-6) (A) **O 91**
Lateral Stability of Freight Cars With Axles Having Different Wheel Profiles and Asymmetric Loading (78-RT-3) (A) **O 90**
Wheel/Rail Forces
Techniques for Measuring Wheel/Rail Forces with Track-side Instrumentation (77-WA/RT-9) (A) **Mr 85**
Wheel Regenerative Dryers
Performance of Rotary Bed Silica Gel Solid Desiccant Dryers (78-HT-36) (A) **O 95**
Wheeler, E. L. Development of the Garrett GTPF990—A 5000-Horsepower Marine and Industrial Gas Turbine Engine (78-GT-44) (A) **Ji 92**
Wheelless Transport
Transport Without Wheels (CB) **Je 114**
Wheels
Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) (A) **Mr 84**
Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/Prod-27) (A) **Je 106**
Mechanics of Rotary Dressing of Grinding Wheels (77-WA/Prod-23) (A) **Je 105**
Omnidirectional Wheel (BTR) **My 58**
Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) (A) **F 131**
Thermal Damage and Rail Load Stresses in a 33-In. Railroad Car Wheel (77-WA/RT-2) (A) **Mr 84**
Wheelset Lateral Dynamic Analysis
Wheelset Lateral Dynamic Analysis Using the Describing Function Technique (77-DET-149) (A) **F 129**
Whirl Frequency
Some Experiments on Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) (A) **Ja 109**
Whirl Orbit
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) (A) **Mr 86**
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) (A) **Ja 109**
White, P. R. A Hierarchical Data Organization-Facilitating Interactive Three-Dimensional Design (77-DET-108) (A) **F 125**
White, R. C. Life Sciences Experiments Mission Development Test Program (78-ENAs-36) (A) **N 114**

White, W. E. On the Minimum-Commitment Method for Correlation of Creep-Rupture Data (78-Mat-18) (A) **O 100**; On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) (A) **O 98**

Whitfield, A. Computer Aided Design of Mixed Flow Turbines for Turbochargers (78-GT-191) (A) **S 76**; Rationalization of Empirical Loss Coefficients and their Application in One Dimensional Performance Prediction (78-GT-177) (A) **S 75**

Whiting, A. R. Recent Experience in Inservice Examinations (78-NE-13) (A) **N 116**

Whitt, F. R. *(author)* Bicycling Science (CB) **My 105**

Widera, G. E. O. Analysis of Edge-Beam Reinforced Layered Cylindrical Pressure Vessels (78-PVP-103) (A) **N 124**

Wied, E. A New Concept for the Development of Coal Burning Gas Turbines (78-GT-40) (A) **JI 91**

Wiedersum, G. C. Heat Pumps (C) **Je 58**; Of Utility Rates and Free Lunches (C) **Ap 46**

Wierman, R. W. Performance Improvement Method for Large, Longitudinally Pitched, Finned Tube Air Heat Exchangers (77-WA/NE-8) (A) **Je 101**

Wiesner, F. J. A New Appraisal of Reynolds Number Effects on Centrifugal Compressor Performance (78-GT-149) (A) **Ag 114**

Wildhaber, E. Never Too Old For Another Gear Idea! **Mr 29**

Wiley, A. Influence of Static and Dynamic Asymmetric Loading Conditions on Silo Design (77-DET-145) (A) **F 128**

Wilkes, C. The Effects of Fuel Bound Nitrogen Concentration and Water Injection on NO_x Emissions from a 75-MW Gas Turbine (78-GT-89) (A) **Ag 107**

Williams, G. N. Computer Assisted Analysis of Cracking in Zr-2.5 Wt% Nb Pressure Tubes (78-PVP-42) (A) **N 117**

Williams, H. A., Jr. Higher Fuel Efficiency for EMD Diesel Locomotives (78-RT-4) (A) **O 90**

Williams, R. J. Interactive Modeling and Analysis of Open or Closed Loop Dynamic Systems with Redundant Actuators (78-DET-42) (A) **D 92**

Williamson, D. Design of a Family of Packages for A 7500-kW Industrial Gas Turbine (78-GT-37) (A) **JI 91**

Willmert, K. D. A Hierarchy of Methods for Analysis of Elastic Mechanisms with Design Applications (78-DET-56) (A) **D 92**; Mechanism Optimization Via Optimality Criterion Techniques (78-DET-53) (A) **D 91**; Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) (A) **Ja 111**

Wilson, D. E. Fabrication and Test of a 70 K Heat Pipe Radiator (78-ENAs-16) (A) **N 111**; Peristaltic Pumping by a Lateral Bending Wave (77-WA/Bio-12) (A) **Ap 99**

Wilson, D. G. *(author)* Bicycling Science (CB) **Mr 105**

Wilson, J. Seismic Qualification Testing for Shutoff Mechanism for CANDU Reactor (78-PVP-41) (A) **N 117**

Wilson, J. M. Design and Development of a Power Turbine for the Spey Gas Generator (78-GT-183) (A) **S 75**

Wilson, R. M. The Elastic-Plastic Behavior of a Tube During Expansion (78-PVP-112) (A) **N 125**

Wimberly, G. L. A Demonstration of Refueling Outage Improvements (78-JPGC-NE-11) (A) **D 85**

Wind Energy

Harnessing the Wind for Home Energy (CB) **D 97**

Wind Engineering

Wind Effects on Structures: An Introduction to Wind Engineering (CB) **D 97**

Wind Power

Paddle Wheeler to Harness Current (BTR) **JI 48**

On Vortex Wind Power (77-WA/FE-20) (A) **Ap 96**

The Wind, a Low-Grade Energy Source (77-WA/Ener-4) (A) **My 93**

Wind Power (C) **JI 41**

Wind Power (C) **Ja 50**

Wind Power Prices (C) **Ap 45**

Wind Tunnel

Design of an Elastic Wind Tunnel Model of a Tall Office Building Using a Finite Element Computer Code (77-WA/DE-6) (A) **Mr 94**

Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) (A) **JI 88**

Wind Tunnels

Cross Flow Induced Vibrations in a Tube Bank (78-PVP-25) (A) **O 104**

Current Meter Corrections for Turbulence (77-WA/FM-3) (A) **Ap 100**

A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) (A) **Ap 95**

A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) (A) **Ap 95**

A Wind-Tunnel Study of the Effect of the Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) (A) **Ap 96**

Wind Turbine Generator

Nation's Largest Wind Turbine Generator (BTR) **N 67**

Wind Velocity

On the Flutter Instability of a Suspension Bridge Using the Finite Element Method (77-DET-140) (A) **F 128**

Windmill Generators

RCA's New Energy-Storage Cycle (ES) **D 14**

Window Unit

Window-Mounted Auxiliary Solar Heater (BTR) **Ja 62**

Windshield Technology

The Design and Development of Heated, Impact Resistant Windshields for Locomotives (78-RT-5) (A) **O 90**

Winer, W. O. Asperity Interactions in EHD Contacts (77-Lub-19) (A) **Mr 86**; Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) (A) **F 132**; An Investigation Into the Influence of Fluid Viscoelasticity in Squeeze Film Bearing (77-Lub-25) (A) **Mr 86**; Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) (A) **Mr 86**

Winnick, J. Molten-Carbonate CO_2 Concentrator: Preliminary Experiments (78-ENAs-2) (A) **N 110**

Winowich, N. S. Phase Change in Liquid Face Seals (77-Lub-12) (A) **Mr 85**

Winter, H. The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) (A) **Ja 112**

Winzenried, R. W. Seals for Geothermal Roller Drill Bits (77-Pet-53) (A) **Ja 103**

Wiring Boards

A Design Procedure for Printing Wiring Boards (77-DET-110) (A) **F 125**

Wirth, X. The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) (A) **Ja 112**

Witmer, E. A. Computer Code for Predicting the Dynamic Response of High Energy Piping, Pressure Vessels, and Shell Structures Subjected to Transient Loads and Impacts (78-PVP-33) (A) **N 116**; Transient Response of Thin, Thick, or Sandwich Shells and Pressure Vessels Subjected to Transient Loads (78-PVP-35) (A) **N 116**

Wittekindt, W. Vaneless Diffuser Flow with Extremely Distorted Inlet Profile (78-GT-47) (A) **JI 92**

Witton, J. J. An Investigation of Turbine Erosion by Combustor Generated Carbon in a Lightweight Marine Gas Turbine (78-GT-96) (A) **Ag 107**

Wöhlbier, F. H. *(editor)* Mechanical Properties (CB) **My 106**

Wojcik, C. K. Kinematics of an Epicyclic Gear Pump (78-DET-13) (A) **D 88**

Woll, E. J. Ride Quality of Autorack Cars (77-WA/RT-7) (A) **Mr 85**

Woll, H. Elections to Fellow Grade **Mr 82**; **Ag 103**

Woll, S. Recent Advances in Evaluating Critical Heat Flux Conditions in LMFBR Steam Generators (77-WA/NE-11) (A) **Je 101**

Wolfe, H. F. Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) (A) **Je 110**

Women Engineers

Fast-Track II Free for Women Engineers (EN) **N 81**

Introducing Engineering to High School Girls (EN) **Ja 78**

Job Prospects Improve for Some College Graduates (EN) **My 74**

Loan Fund for Women in Engineering Studies (EN) **Mr 66**

Status of Minority and Women Ph.D's in the 1970s (EN) **F 58**

SWE Conventions Go Only to ERA States (NR) **Ja 75**

Wong, K. K. Energy Equations for Convection in Saturated Porous Media (78-HT-54) (A) **O 97**

Woo, H. K. Response of a Finite Thin Cylindrical Shell of Graphite Materials to a Thermal Shock (77-WA/HT-9) (A) **Ap 102**

Wood Grinding

Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) (A) **Je 106**

Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) (A) **Je 106**

An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) (A) **Je 107**

Wood Properties

High Energy Water Jet Cutting Equations for Wood (77-WA/Prod-18) (A) **Je 104**

Woodruff, G. L. Nuclear Proliferation and Nuclear Power (77-WA/TS-1) (A) **My 98**

Wood, J. L. Design and Dynamic Performance of a Hydromechanical Impact Breaker (77-WA/Fics-3) (A) **Ap 97**

Woods, Monty, III Determination of Tissue Perfusion from in Vivo Thermal Conductivity Measurements (77-WA/HT-40) (A) **My 99**

Woods, R. L. Jet Partitioned Fluid Amplifiers (77-WA/Fics-2) (A) **Ap 97**

Work Material

Tool Life Distributions: Part 4—Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) (A) **Je 108**

Work Measurement Procedures

Improving U.S. Productivity—Part 2—How to Improve Management Procedures **O 30**

World Pollution

World's Trash Can? (BTR) **F 53**

Worldwide Resource Wastefulness

Appropriate Technology for Developed Countries (77-WA/TS-4) (A) **My 98**

Worm Gear

Effect of Number of Gashes in Hob on Accuracy of Generated Tooth Profile of Worm Gear (77-DET-55) (A) **Ja 112**

Worm Gearing

A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) (A) **Ja 113**

A Study on Involute Worm Gearing on Non-Right Axial Angle (77-DET-36) (A) **Ja 110**

Worm Gears

Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) (A) **F 131**

Worsoe-Schmidt, P. Design of a Combined Solar Collector/Absorber/Desorber for a Solid-Absorption Refrigerating System (78-HT-35) (A) **O 95**

Wrap Beam

On the Thermal Effects in a Wrap Beam (A Wound-Yarn-Package) (77-Tex-3) (A) **F 132**

Wright, J. Shaft Couplings and the Cinderella Syndrome (77-DET-132) (A) **F 127**

Wright, J. P. "Big Bang Was a 'Cool' Show" (C) **My 51**; Fabrication and Test of a 70 K Heat Pipe Radiator (78-ENAs-16) (A) **N 111**

Wright, P. K. Correlation of Tempering Effects With Temperature Distribution in Steel Cutting Tools (77-WA/Prod-16) (A) **Je 104**

Wright, R. W. The Design and Development of Heated, Impact Resistant Windshields for Locomotives (78-RT-5) (A) **O 90**

Wu, E. M. A High-Order Theory of Plate Deformation—Part 1: Homogeneous Plates (77-WA/APM-23) (A) **JI 98**; Part 2: Laminated Plates (77-WA/APM-24) (A) **JI 98**

Wu, H. C. Experimental Investigation of the Angled Elliptic Noch Problem in Tension (77-WA/APM-6) (A) **Je 111**

Wu, J. N. C. Seismic Design Study on Cantilever Cylindrical Shells (77-PVP-14) (A) **Ja 107**

Wu, S. M. Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) (A) **Je 106**; An Orthomorphic Rheological Model of the Grinding (77-WA/Prod-30) (A) **Je 107**

Wullaert, R. A. Reference Fracture Toughness Curves for Irradiated Pressure Vessel Steels (78-Mat-20) (A) **O 101**

Wy, S. M. Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) (A) **Je 106**

Wyler, J. S. Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) (A) **Ap 100**

Wynveen, R. A. Instrumentation for Controlling and Monitoring Environmental Control and Life Support Systems (78-ENAs-40) (A) **D 87**

X

Xistris, G. D. Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) (A) **Mr 95**

X-Ray Diffraction
Ewald Honored by Crystallographers (BTR) **Ji 49**

X-Ray Film
Photograph Restoration

Y

Yada, T. Planetary Ball Drive Mechanism (PLABALL) (77-DET-170) (A) **F 130**

Yakut, M. M. Life Support Systems for Biological Specimens in the Shuttle/Spacelab (78-ENAs-38) (A) **N 114**

Yamanaka, K. Research of the XF3-1 Turbofan Engine (78-GT-199) (A) **S 76**

Yamasaki, H. Experimental Study on Flow in a Supersonic Centrifugal Impeller (78-GT-2) (A) **Ji 87**

Yan, H. S. Technology Transfer in the Design of Adjustable Linkages (78-DET-67) (A) **D 94**

Yan, M. J. Seismic Analysis of Piping Systems on Rocking Foundation Mat (78-PVP-40) (A) **N 117**

Yan, M. M. Perturbation Solutions to Phase Change Problem Subject to Convection and Radiation (77-WA/HT-16) (A) **Ap 102**

Yang, A. T. Multistage Geared Geneva Mechanism (78-DET-18) (A) **D 89**

Yang, P. Y. Instrumentation for Controlling and Monitoring Environmental Control and Life Support Systems (78-ENAs-40) (A) **D 87**

Yanichko, S. E. Effects of Irradiation on A508 Class 2 and 3 Forging Grade Steels (78-Mat-21) (A) **O 101**

Yao, B. A Thermodynamic Study of Heating With Geothermal Energy (77-WA/Ener-1) (A) **My 93**

Yao, J. T. P. A Method for Reliability Analysis of Concrete Reactor Vessels (78-PVP-100) (A) **N 123**

Yao, L. S. The Longitudinal Water Boundary Layer Along a Nonisothermally Heated Horizontal Cylinder (78-HT-19) (A) **O 94**

Yao, N. P. Heat Transfer in Lead-Acid Batteries (78-HT-52) (A) **O 97**

Yao, R. F. Experimental Investigation of the Angled Elliptic Notch Problem in Tension (77-WA/APM-6) (A) **Je 111**

Yarn Properties
Combing of Opening Room Blends of Cotton and Polyester (77-Tex-5) (A) **F 132**

Yarn Tension
Calculation of Peak Tension During Ring-Spinning (77-Tex-6) (A) **F 132**

Yas'ko, O. I. Investigation of Heat Transfer Between an Electric Arc and a Turbulent Gas Flow in a Channel (78-HT-8) (A) **O 92**

Yaverbaum, L. *(author)* Fluidized Bed Combustion of Coal and Waste Materials (CB) **F 136**

Yeh, G. C. K. Reduction of Allowable Seismic or Weight Piping Span Length Due to Presence of a Concentrated Mass (78-PVP-19) (A) **O 104**

Yen, H. H. Evaluation of Scale-Model for Operability Qualification of Seismic Loading (77-PVP-63) (A) **Ja 106**

Yen, Y. C. Heat Transfer and Onset of Convection in a Melted Water Layer (78-HT-41) (A) **O 97**

Yi, C. J. Flight and Propulsion Control Integration for Selected In-Flight Thrust Vectoring Modes (78-GT-79) (A) **Ag 105**

Ying, A. S. A Helium Cooling System for Large Superconducting A.C. Generators (77-WA/HT-36) (A) **Ap 105**

Yip, F. C. Advances in Frost Heave Prediction and Mitigation Methods for Pipeline Application (77-WA/HT-19) (A) **Ap 103**

Yip, M. C. Experimental Investigation of the Angled Elliptic Notch Problem in Tension (77-WA/APM-6) (A) **Je 111**

Yokote, T. Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling Sliding Conditions (77-DET-47) (A) **Ja 112**

Yonekura, M. Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) (A) **F 122**

Yoshida, A. Difference Between Rolling Fatigue Behaviors of Surface Hardened and of Soft Steel Rollers (77-DET-57) (A) **Ja 112**

Yoshida, K. Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) (A) **F 123**

Yoshimura, S. Remotely Operated Ultrasonic Testing System (78-NE-3) (A) **N 114**

Yoshino, H. Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling Sliding Conditions (77-DET-47) (A) **Ja 112**

Young, C. Rock Breakage with Pulsed Water Jets (77-Pet-78) (A) **Ja 106**

Young, R. D. Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) (A) **Ja 106**

Young, W. C. Structural and Mechanical Design of Tokamaks (77-WA/NE-2) (A) **Je 100**

Youngdahl, C. K. Pressure Transient Analysis in Piping Systems Including the Effects of Plastic Deformation and Cavitation (78-PVP-56) (A) **N 118**

Yousef, W. W. Analytical Approach for the Design of Fine-Metering Valves (77-WA/FE-24) (A) **Ap 96**

Yuruzume, I. Transmission Errors and Noise of Spur Gears Having Uneven Tooth Profile (77-DET-51) (A) **Ja 112**

Z

Zachman, N. J. Design of a Load Simulator for the Dynamic Evaluation of Prosthetic Knee Joints (78-DET-59) (A) **D 94**

Zaki, H. A New Class of Spool Valves with Built-In Dampers (78-DE-6) (A) **S 73**

Zaresky, E. V. Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) (A) **F 126**

Zauderer, B. Coal Fired Non-Equilibrium, Closed Cycle MHD/Steam Power Generation (77-WA/Ener-8) (A) **My 95**

Zdeblick, W. J. An Experimental Strategy for Designing Tool Life Experiments (77-WA/Prod-24) (A) **Je 106**

Zelenka, T. Design and Operation of a Large-Diameter (1.67-m) Steamline (78-PVP-86) (A) **N 122**

Zellmer, J. Derivation of Cost Factor for Novel Mining Energy Source Minerals (77-Pet-46) (A) **Ja 103**

Zeltmann, E. W. Environmental Standards Need Cost/Benefit Analysis **F 32**

Zeolites
Control of Nuclear Fuel Storage Basin Water Quality by Use of Powered Ion Exchange Resins and Zeolites (77-JPGC-NE-15) (A) **Mr 91**

Zerrmayr, F. The Turbine Fatigue and Creep Evaluator Determination of Cumulative Low-Cycle Fatigue and Creep from Steam Turbine Operational Measurements (77-JPGC-Pwr-3) (A) **Mr 88**

Zienkiewicz, O. C. *(author)* The Finite Element Method (CB) **Je 114**

Zimmerman, D. R. An Experimental Investigation of a Three-Dimensional Turbulent Boundary Layer (77-WA/FE-22) (A) **Ap 96**

Zipkin, M. A. Making Turbofan Engines More Energy Efficient (78-GT-198) (A) **S 76**

Ziv, M. Integrable Generalized Wave Equations Exhibiting a Hypoelastic Compressible Rate-Sensitive Material Flow (77-WA/APM-2) (A) **Je 111**

Zollinger, E. Optimization Analysis of a CCGT Nuclear Power Plant with Application to the HHT 3000 MWth Commercial Plant (HHT-Project) (78-GT-16) (A) **Ji 88**

Zollinger, H. J. A Computer Program for the Design of Turbomachinery Blades (78-GT-36) (A) **Ji 91**

Zorowski, C. F. Modeling and Analysis for Seismic Adequacy in Air Handling Unit Enclosures—The Effects of Structural Reinforcement (77-DET-136) (A) **F 127**

Zsolcsak, S. J. Coupling Selection for Synchronous Motor Drive Systems (77-DET-131) (A) **F 127**

Zugaro, F. F. A Method Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) (A) **F 132**

Zupan, J. M. *(author)* Public Transportation and Land Use Policy (CB) **Ja 117**

ZurLippe, C. F. Surveillance Capsule Results from the Oconee Class Reactors (78-Mat-22) (A) **O 101**

Index to
TRANSACTIONS OF THE ASME

Volume 100, 1978

(Published Quarterly in Eleven Journals)

A

Abdel-Khalik, S. I. Assessment of Surface-Heating Problems in Laser-Fusion Reactors **HT 311**; Natural Convection In Compound Parabolic Concentrators—A Finite-Element Solution **HT 199**

Abdel-Wahed, R. M. Development of Wall and Free Plumes Above a Heated Vertical Plate **HT 184**

Abdulhadi, R. S. Flow and Heat Transfer in Convectively Cooled Underground Electric Cable Systems: Part 1—Velocity Distributions and Pressure Drop Correlations (76-WA/HT-45) **HT 30**; Part 2—Temperature Distributions and Heat Transfer Correlations (76-WA/HT-42) **HT 36**

Abé, H. Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**

Abo-El-Ata, M. M. Irradiation Effects on the Behavior of Structural Materials at Elevated Temperature **MT 121**

Abrasion Wear
On a Diffusion Wear Model for High Speed Steel Tools **L 436**

Abrasive Grains
Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/PROD-27) **I 297**

Abrasive Papers
Variables Influencing Degradation of SiC Abrasive Papers **L 501**

Abrasives
Strain Rate Effects in Low Speed Two-Body Abrasion **L 181**

Absorbers
Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structures (77-DET-84) **MD 279**
Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) **MD 236**
Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAs-54) **I 383**
Use of Dynamic Absorbers to Control Parametric Instabilities of a Pipe (BN) **AM 949**

Absorbing Infinite Slab
Combined Conductive and Radiative Heat Transfer in an Absorbing and Scattering Infinite Slab (77-HT-50) **HT 98**

Absorptance Values
Evaluation of Portable Optical Measurement Equipment for Solar Selective Surfaces (77-WA/Sol-1) **P 489**

Absorption Calculation
Accurate Spectral Modeling for Infrared Radiation (77-HT-69) **HT 240**

Absorption Coefficients
Infrared Mean Absorption Coefficients of Luminous Flames and Smoke **HT 235**
Multi-Dimensional Radiative Transfer in Nongray Gases—General Formulation and the Bulk Radiative Exchange Approximation (77-HT-51) **HT 486**
Theoretical Determination of Band Absorption for Nonrigid Rotation with Applications to CO, NO, N_2O, and CO_2 **HT 230**

Absorption-Regeneration Power Cycle
A Novel Absorption Regeneration-Thermodynamic Heat Engine Cycle **P 566**

Acceleration
Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) **F 17**

Acceleration Changes
Effects of Jerk Limiting on the Stability of Automated Transit Vehicles **DS 298**

Acceleration Data
The Prediction of Passenger Riding Comfort From Acceleration Data (77-WA/Aut-6) **DS 34**

Acceleration Method
Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 2: Error Propagation **AM 603**

Acceleration Response
Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part I—A Mathematical Model **DS 311**; Part

Code	Journal of	Published	Pages
AM	Applied Mechanics	March	1-240
		June	241-460
		September	461-708
		December	709-972
BE	Biomechanical Engineering	February	1-56
		May	57-104
		August	105-168
		November	169-244
DS	Dynamic Systems, Measurement, and Control	March	1-104
		June	105-164
		September	165-232
		December	233-348
F	Fluids Engineering	March	1-144
		June	145-260
		September	261-384
		December	385-504
HT	Heat Transfer	February	1-176
		May	179-384
		August	385-564
		November	565-752
I	Engineering for Industry	February	1-112
		May	113-296
		August	297-392
		November	393-496
L	Lubrication Technology	January	1-144
		April	145-308
		July	309-448
		October	449-514
MD	Mechanical Design	January	1-200
		April	201-408
		July	409-584
		October	585-768
MT	Materials Technology	January	1-112
		April	113-224
		July	225-336
		October	337-432
P	Engineering for Power	January	1-196
		April	197-392
		July	393-488
		October	489-724
PVT	Pressure Vessel Technology	February	1-132
		May	133-244
		August	245-324
		November	325-428

(AC)	Author's Closure; Author's Reply	(CR)	Conference Report	(Er)	Erratum
(Ad)	Addendum	(D)	Discussion	(F)	Forum
(BN)	Brief Note	(DDM)	Design Data and Methods	(Op)	Opinion
(BR)	Book Review	(EB)	Educational Brief	(TB)	Technical Brief
(C)	Comment	(Ed)	Editorial		

II—Simulated Versus Experimental Data **DS 319**

Acceleration Waves
On the Behavior of Acceleration Waves in Elastic Dielectrics With Internal State Variables **AM 745**
Reflection of Acceleration Waves in an Elastic-Plastic Medium **AM 51**

Accelerating Spheres
Periodic Discontinuities in the Acceleration of Spheres in Free Flight (D) **F 247**; (AC) **F 248**

Achenbach, J. D. *(reviewer)* Mechanik der Polymer Werkstoffe (BR) **AM 456**; A Ray Theory for Elastodynamic Stress-Intensity Factors **AM 123**

Acid-Resistant Cements
Nonshrinking Heat and Acid-Resistant Hydrothermal Cement for Use in Oil and Gas Wells (77-Pet-27) **PVT 34**

Acoustic Emission
Acoustic Emission Examination **PVT 127**

Acoustic Emission Techniques
Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**

Acoustic Medium
Steady-State Motion of a Shell of Revolution in an Acoustic Medium (BN) **AM 447**
Transient Motion of an Elastic Shell of Revolution in an Acoustic Medium **AM 149**

Acoustic Signatures
Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) **I 459**; (D) (AC) **I 466**

Acoustic Space
A Strategy for the Optimum Design of Acoustic Space (77-DET-44) **MD 411**

Acoustic Wave Guides
Sound Waves in Solids **AM 967**

Acoustical Resonance
A Novel Pressure Transducer Using Mechanical Resonance **DS 83**

Acrylic Plastic Shells
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) **I 249**

Acrylic Plastic Windows
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) **I 273**

Acrylic Pressure Hulls
Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) **I 261**; (D) **I 271**; (AC) **I 272**

Active Compensation
A Note on the Active Compensation of a Flexibly Mounted Stabilized Platform (TB) **DS 92**

Active Control Technique
Rail Passenger Vehicle Lateral Dynamic Performance Improvement Through Active Control **DS 270**

Active Nucleation Sites
Spatial Distribution of Active Sites and Bubble Flux Density **HT 56**

Adams, C. E. Review of Wear Problems in the Computer Industry (77-Lub-4) **L 189**; (D) **L 195-197**; (AC) **L 198**

Adams, D. F. The Influence of Material Variability on the Predicted Environmental Behavior of Composite Materials (77-WA/Mat-9) **MT 77**

Adams, G. G. An Elastic Strip Pressed Against an Elastic Half Plane by a Steadily Moving Force **AM 89**

Adams, R. L. Lift on a Rotating Porous Cylinder (D) **F 136**; (AC) **F 137**

Adams, T. P. A Note on the Active Compensation of a Flexibly Mounted Stabilized Platform (TB) **DS 92**

Adaptive Control Logic
Development of Gas Turbine Performance Seeking Logic (78-GT-13) **P 571**; (D) (AC) **P 575**

Adaptive Control System
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/PROD-19) **I 303**; (D) **I 309**; (AC) **I 310**

Addie, A. H. Energy Requirements of the Rail Mode (78-RT-1) **I 475**

Adhesive Bond Stresses
Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) **MT 16**

Adhesive Joints
Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) **MT 25**

Adhesive Layers
The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) **MT 2**

Adhesive Wear
Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear **L 492**; (D) (AC) **L 499**

Adhesively Bonded Cracked Panels
Fracture Analysis of Adhesively Bonded Cracked Panels (77-WA/Mat-2) **MT 10**

Adhesively Bonded Doubler
Growth Characteristics of a Fatigue Crack Approaching and Growing Beneath an Adhesively Bonded Doubler (77-WA/Mat-14) **MT 52**

Adhesively Bonded Graphite Composites
Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) **MT 64**

Adhesively Bonded Laminates
Fatigue Crack Propagation in 8- and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) **MT 32**

Adhesively Bonded Metallic Structures
A Parametric Study of Fatigue Crack Growth Behavior in Adhesively Bonded Metallic Structures (77-WA/Mat-5) **MT 46**; (D) (AC) **MT 223**

Adhesively Bonded Structures
Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) **MT 70**
Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) **MT 57**

Adiabatic Wall Temperature
Adiabatic Wall Temperature and Heat Transfer Downstream of Injection Through Two Rows of Holes (77-GT-50) **P 303**

Adkins, R. C. The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) **P 444**

Adler, D. A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (D) **F 250**; (AC) **F 252**

Admissible Temperature Increases
Determination of Admissible Temperature Increases to Prevent Vertical Track Buckling **AM 565**

Adubi, F. A. Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**

Advanced Energy Conversion Systems
Performance and Economics of Advanced Energy Conversion Systems for Coal and Coal-Derived Fuels **P 252**

Advani, S. H. Nonlinear Constitutive Relations for Human Brain Tissue **BE 44**; (Er) **BE 66**

Aerodynamic Design
Aerodynamic Design and Verification of a Two-Stage Turbine With a Supersonic First Stage **P 197**

Aerodynamic Drag
A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) **F 443**
A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) **F 434**
A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) **F 439**

Aerodynamic Response
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) **P 664**; (D) (AC) **P 675**

Aerodynamics
Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**
Helicopter Dynamics (BR) **AM 966**
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) **P 655**
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**
Torquewhirl—A Theory to Explain Nonsynchronous Whirling Failures of Rotors With High-Load Torque **P 235**
Torsional Flutter in Stalled Cascade **P 317**

Aero-Gas Turbines
Design and Development of a High-Pressure Combustor for Aero-Gas-Turbines (77-GT-96) **P 129**

Aerosols
Particle Deposition in a Charged Aerosol Flowing Through a Conducting Tube **F 449**

Aerothermochemistry
Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) **HT 531**

Afimiwala, K. A. Optimum Design of Control System Compensators **DS 140**

Aging
The Effect of Plastic Strain Followed by Aging on the Torsion Fatigue Resistance of Quenched and Tempered 4340 Steel (TB) **MT 219**

Agogino, A. M. Notch Effects, Stress State, and Ductility **MT 348**

Ahmad, T. An Investigation of the Laminar Overfire Region Along Upright Surfaces (77-HT-68) **HT 112**

Ahmadi, B. Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) **P 432**

Ahmadi, G. A Perturbation Method for Studying Heat Conduction in Solid With Random Conductivity (BN) **AM 933**

Ainoura, M. A Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) **MD 470**

Ainso, H. Annular Dome Subjected to Uniform Load Over an Eccentric Circular Area **AM 845**

Air Clearing
Experimental Tests of the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 605**
On the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 601**

Air Disk Brakes
Straight-Air Disk Brake Systems for Heavy Vehicles (77-DE-23) **MD 113**

Air Layers
Free Convection across Inclined Air Layers with One Surface V-Corrugated **HT 410**

Air Mixing
Air Mixing in a Model Lung Alveolus **BE 211**

Air Model Tests
Air Model Tests of Labyrinth Seal Forces on a Whirling Rotor **P 533**

Air Placement
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) **P 444**

Air Springs
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) **MD 500**

Air Turbine Stage
Measurements of the Performance of an Turbine Stage at Positive and Negative Mass Flow and Rotational Speed (Four-Quadrant Characteristics) (77-GT-14) **P 22**

Air-Vapor Dynamics
Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) **F 65**

Air Velocities
The Velocity Characteristics of Ventilated Rooms **F 291**

Air Velocity Pattern
Fuel Spray Trajectory in Diesel Engines (77-DGP-1) **P 326**

Aircraft Brake Materials
Wear Studies on Aircraft Brake Materials **L 98**

Aircraft Clutch
Sprag Overriding Aircraft Clutch (GR) **MD 205**

Aircraft Control System Design
The Use of Sensitivity Functions to Match Matrix Transfer Functions to Time-Domain Performance Criteria **DS 187**

Aircraft Engines
Development of Gas Turbine Performance Seeking Logic (78-GT-13) **P 571**; (D) (AC) **P 575**
The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) **P 630**
Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) **P 704**
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) **P 691**; (D) (AC) **P 697**
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) **P 647**

Aircraft Gas Turbine
Development of a Hybrid Catalytic Combustor **P 267**

Aircraft Gears
Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) **MD 54**

Aircraft Structural Joint Configurations
Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) **MT 70**

Air Disk Brakes
Straight-Air Disk Brake Systems for Heavy Vehicles (77-DE-23) **MD 113**

Airflow
Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**
Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) **HT 352**
Inviscid Rotational Flow Through Sprays (BN) **AM 934**

Airfoil Cascades
Experimentally Determined Stability Parameters of a Sub-

sonic Cascade Oscillating Near Stall (77-GT-47) **P 111**

Airfoils

Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) **P 664**; (D) (AC) **P 675**

Unsteady Transonic Thin-Airfoil Theory for Power-Law Upwash (BN) **AM 440**

Airway Network

Mechanical Response of the Lungs at High Frequencies **BE 57**

Airway Network Geometry

Noninvasive Inference of Airway Network Geometry From Broadband Lung Reflection Data **BE 131**

Airway Structure

Canine Pulmonary Input Impedance M asured by Transient Forced Oscillations **BE 67**

Akhtaruzzaman, A. F. M. Wave Motion in Multilayered Liquid Films **AM 25**

Akin, L.S. Study of Lubricant Jet Flow Phenomena in Spur Gears—Out of Mesh Conditions (77-DET-104) **MD 61**; (D) **MD 68**; (AC) **MD 68**

Akiyama, T. Shear Fracture Propagation by DCB Testing (77-Pet-33) **PVT 18**

Al Jumaily, A. M. Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) **MD 183**

Alabi, B. Solution of Navier's Equation in Cylindrical Curvilinear Coordinates **AM 812**

Alamgir, Md. Early Response of Hot Water to Sudden Release from High Pressure **HT 473**

Alamjir, M. The Temperature Dependence of Surface Tension of Pure Fluids **HT 324**

Alexandridis, A. A. The Coupled Response of a Dynamic Element Riding on a Continuously Supported Beam **AM 864**

Alger, T. W. Calculation of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (76-WA/FE-31) **F 355**

Alic, J. A. Fatigue Crack Propagation in 8- and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) **MT 32**

Alignment Errors

Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) **MD 77**

Algebraic Stress Modeling

The Effect of Buoyancy on the Turbulence Structure of Vertical Round Jets **HT 659**

Algorithms

Analytic Derivation of Static Pressure Distribution in Fully Developed Helical Flows **F 201**

Development of Gas Turbine Performance Seeking Logic (78-GT-13) **P 571**; (D) (AC) **P 575**

Dynamics of Multirigid-Body Systems (78-WA/APM-10) **AM 889**

Finite-Element Methods for Nonlinear Elastodynamics Which Conserve Energy **AM 366**

A Generalized Decomposition Procedure and Its Application to Engineering Design (77-DET-62) **MD 739**

The Generation of Continuous Gradient Functions (TB) **DS 152**

Implicit-Explicit Finite Elements in Transient Analysis: Implementation and Numerical Examples **AM 375**; **AM 371**

A Novel Physico-Computational Model for Quasi One-Dimensional Gas-Particle Flows (76-WA/FE-36) **F 343**

A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**

A Realistic Solution of the Symmetric Top Problem (78-WA/APM-20) **AM 903**

Roots of Lambda Matrices (78-WA/APM-4) **AM 859**

Simulation of Continuous Systems by Periodic Structures **AM 385**

A Transformation Method With Two Parameters for Constrained Optimal Control Problems **DS 124**

Allaire, P. E. Optimum Bearing and Support Damping for Unbalance Response and Stability of Rotating Machinery (77-GT-27) **P 89**; On the Transmissibility of Short Porous Journal Bearings (D) **L 302**; (AC) **L 303**

Alloys

An Analysis of High Temperature Metal Creep Part I: Experimental Definition of an Alloy **MT 363**

Centrifugally Cast Metallurgical Coatings for Wear Resistance in Plastics Molding Machines **L 423**

Concerning a Creep Surface Derived From a Multiple Integral Representation for 304 Stainless Steel Under Combined Tension and Torsion (78-WA/APM-11) **AM 773**

Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) **MT 381**

Cryogenic Tensile, Fatigue, and Fracture Parameters for a Solution-Annealed 18 Percent Nickel Maraging Steel **MT 189**

Effect of Structure on Wear Resistance of Co-, Fe-, and Ni-Base Alloys **L 428**

Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) **P 704**

Fatigue Design Criterion for Pressure Vessel Alloys (D) **PVT 236**

On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**

Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/PROD-29) **I 217**

High Temperature Properties and Constitutive Equations for 1 Cr-½ Mo Steel (77-PVP-50) **PVT 246**

Hydrogen Gas Generation in Water Heat Pipes **MT 313**

The Room Temperature and Elevated Temperature Fracture Toughness Response of Alloy A-286 **MT 195**

Wear of Titanium and Titanium Alloys Under Conditions of Rolling Stress **L 199**

Alpay, S.A. A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**

Alperi, R. W. Tube Wall Temperatures of an Eccentrically Located Horizontal Tube within a Narrow Annulus (TN) **HT 548**

Alsaad, M. Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) **L 404**; (D) **L 416**; (AC) **L 417**

Alsaad, M. A. Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) **L 418**

Altan, T. Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) **I 159**; A Numerical Method for Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/PROD-35) **I 413**

Alternative Tuned Absorbers

Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structure (77-DET-84) **MD 279**

Aluminous Keatite

Aluminous Keatite—An Improved Rotary Ceramic Regenerator Core Material (77-GT-60) **P 36**

Aluminum

Crack Growth Resistance at Low Stress Intensities **MT 134**

Measurement of the Elastic-Plastic Boundary Around Cold-worked Fastener Holes (78-WA/APM-2) **AM 515**

Aluminum Alloys

Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-WA/APM-3) **AM 507**

Fatigue Crack Propagation in 8- and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) **MT 32**

Alvi, S. H. Loss Characteristics of Orifices and Nozzles **F 299**

Amazigo, J. C. Optimal Shape of Shallow Circular Arches Against Snap-Buckling **AM 591**

American Society of Mechanical Engineers

1978 Design Engineering Conference, review **MD 593**

Fifth ASME Freeman Scholar Program Announcement **HT 647**

HTD Best Paper of the Year Announcement **HT 640**

International Bibliographies **DS 95, 157, 229, 343**

Mayo D. Hersey Award **L 309**

New Editor; Prior Publication Policy; New Paper Length Policy (Ed) **F 2**

"Proof of the Pudding"; "Form Follows Function" (Ed) **MT 337**

Roster of 1977 Reviewers **F 147**

Some Thoughts on Journal Publication Trends (Op) **F 146**

Status ASME XI Appendix A—Evaluation of Flaw Indications **PVT 417**

Amoa, D. E. One Dimensional, Linear Dynamic Electromechanical Responses of Ferroelectric Ceramics **AM 746**

Amplitude Vibration

The Large Amplitude Vibration of a Hinged Beam (BN) **AM 958**

Amsden, A. A. Dynamic Plastic Instabilities in Stretching Plates and Shells **AM 105**

An, K. N. Graphical Interpretation of the Solution to the Redundant Problem in Biomechanics **BE 159**

Analytic Solutions

Analytic Solutions to the Heat Equation Involving a Moving Boundary with Applications to the Change of Phase Problem (the Inverse Stefan Problem) **HT 300**

Analytical Control Design

On The Application Of Modern Control to Power Plants (D) (AC) **DS 94**

Analytical Dynamics

Analytical Dynamics of Discrete Systems (BR) **AM 233**

Analytical Evaluation

The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) **MD 762**

Analytical Investigation

Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) **MD 558**

Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) **MD 549**

Analytical Load-Life Relation

Experimental and Analytical Load-Life Relation For AISI 9310 Steel Spur Gears (77-DET-121) **MD 54**

Analytical Methodology

A Parametric Study to Relate Speed to Permissible Combinations of Track Geometry Deviations **DS 252**

Analytical Methods

Forced Vibration of Continuous System With Nonlinear Boundary Conditions (77-DET-80) **MD 487**

Model Formulation of Complex Mechanisms With Multiple Inputs: Part 1—Geometry (77-WA/DE-9) **MD 747**

Response Envelope Statistics for Nonlinear Oscillators With Random Excitation **AM 170**

Analytical Model

Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) **MD 599**

First-Order Pump Surge Behavior (77-WA/FE-12) **F 459**

Analytical Modeling

Analytical Modeling of Helical Screw Turbines for Performance Prediction **P 432**

Analytical Prediction

Analytical Prediction of Three Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/PROD-9) **I 222**; Part 2: Chip Formation and Cutting Force with Conventional Single-Point Tool (77-WA/PROD-10) **I 229**; Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/PROD-11) **I 236**

Analytical Procedure

Limit Analysis of Hollow Disk Forging: Part 1: Upper Bound (77-WA/PROD-2) **I 340**; (D) (AC) **I 345**, Part 2: Lower Bound (77-WA/PROD-3) **I 347**; (D) (AC) **I 345**

Analytical Results

The Response of an Oscillator With Bilinear Hysteresis to Stationary Random Excitation **AM 923**

Analytical Solutions

Analytical Solutions of Viscous Flow in Constricted or Widened Tubes **AM 241**

Analytical Stability

Stability Tests for One, Two, and Multidimensional Linear Systems **DS 105**

Analytical Study

Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) **MD 480**

Analytical Techniques

Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) **MD 681**

Anand, A. K. An Experimental Study of Three-Dimensional Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P 676**; (D) **P 688-689**; (AC) **P 689**

Anderson, A. D. Boundary Layer Closure and Heat Transfer in Constant Base Pressure and Simple Wave Guns **HT 690**

Anderson, C. A. Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**

Anderson, J. M. Growth Characteristics of a Fatigue Crack Approaching and Growing Beneath an Adhesively Bonded Doubler (77-WA/Mat-14) **MT 52**

Anderson, W. G. Experimental Tests of the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 605**

Andersson, B. A. B. Thermal Stresses in a Submerged-Arc Welded Joint Considering Phase Transformations **MT 356**

Andersson, C. A. Progress on Ceramic Rotor Blade

Development for Industrial Gas Turbines (77-GT-42) **P 58**

Andresen, J. A. High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) **I 49**

Andrews, J. G. Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) **MD 492**; (D) (AC) **MD 498**

Angelino, G. The Use of Liquid Natural Gas as Heat Sink for Power Cycles (77-GT-19) **P 189**

Angled Elliptic Notch
Angled Elliptic Notch Problem in Compression and Tension **AM 258**

Angular Contact Bearings
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) **L 395**

Anhalt, D. A. Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) **DS 24**

Anisotropic Elasticity
Saint-Venant's Principle and End Effects in Anisotropic Elasticity (D) **AM 455**

Anisotropic Flexural Rigidity
Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-88) **MD 274**

Anisotropic Plasticity
Further Developments in Anisotropic Plasticity **MT 294**

Anisotropic Properties
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) **P 356**

Anisotropic Scattering
Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) **HT 665**

Anisotropic Sheet Temperatures
Temperatures in an Anisotropic Sheet Containing an Insulated Elliptical Hole (TN) **HT 553**

Anisotropic Tubes
Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **421**

Anisotropic Waves
Cylindrical Anisotropic Waves in a Nonhomogeneous Material (BN) **AM 687**

Anisotropy
Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) **PVT 77**

Annealing Methods
A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) **MT 272**

Annual Velocity
Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) **PVT 172**

Annular Actuator Disks
Nonaxisymmetric Flow through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**; The View From the Rotor (Ad) **P 615**

Annular Combustors
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) **P 444**

Annular Dome
Annular Dome Subjected to Uniform Load Over an Eccentric Circular Area **AM 845**

Annular Flow
A Surface Rejuvenation Model for Turbulent Heat Transfer in Annular Flow With High Prandtl Numbers **HT 92**

Annular Plate
Axisymmetric Bending of Annular Plates (78-WA/APM-27) **AM 834**
Thermal Buckling of an Annular Plate With Axisymmetric Initial Deflection (BN) **AM 693**

Annulus
The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow **F 210**; (D) **F 377-380**; (AC) **F 380**

Anticoagulants
Experimental Observations on the Thermal Fragility of Erythrocytes Including the Effects of Storage and Anticoagulant **BE 223**

Antipas, A. Embedded Elliptical Crack at a Corner (78-PVP-5) **PVT 28**

Antiplane Shear
Fracture Under Combined Loads by Maximum-Energy-Release-Rate Criterion **AM 553**

Antiplane Strain
Harmonic Wave Propagation in a Periodically Layered, Infinite Elastic Body: Antiplane Strain **AM 343**

Anti-Wear Applications
Ion-Plated Thin Films for Anti-Wear Applications **L 129**

Aoki, S. J-Integral Approach to Fracture of Rotating Disk **MT 128**

Aortic Valve
Vortex Motion and Induced Pressures in a Model of the Aortic Valve **BE 216**

Appl, F. C. A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) **PVT 164**

Appl, F. J. Thermoplastic Determination of Fatigue Damage **MT 200**

Applied Load
Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates **AM 521**

Approach Sections
Predetermination of the Relative Error on the Flow Coefficient of Orifice Meters in Nonstandard Approach Conditions **F 60**

Arai, S. Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**

Arbitrary Geometries
Numerical Method for Multi-Dimensional Freezing Problems in Arbitrary Domains **HT 294**

Arbitrary Poisson's Ratio
Elastic-Plastic Plate With Arbitrary Poisson's Ratio (BN) **AM 205**

Arbitrary-Shaped Membranes
Vibrations and Dynamic Response of Membranes With Arbitrary Shape **AM 153**

Arbitrary Shapes
Dynamics of Viscoelastic Plate With Curved Boundaries of Arbitrary Shape **AM 629**

Arbitrary Tooth Spacing
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) **MD 715**

Arc Welded Joint
Thermal Stresses in a Submerged-Arc Welded Joint Considering Phase Transformations **MT 356**

Arcella, F. G. *(author)* Design and Development of a Segmented Magnet Homopolar Torque Converter (GR) **MD 205**

Arctic Wells
Loading Mechanisms in Thawed Permafrost Around Arctic Wells (D) **PVT 320**

Area Pipes
A Bond Graph Modeling Philosophy for Thermofluid Systems **DS 70**

Ariaratnam, S. T. Response Envelope Statistics for Nonlinear Oscillators With Random Excitation (D) (AC) **AM 964**

Arin, K. A Parametric Study of Fatigue Crack Growth Behavior in Adhesively Bonded Metallic Structures (D) (AC) **MT 223**; The Problem of Internal and Edge Cracks in an Orthotropic Strip (D) **AM 228**

Arnold, D. J. High-Temperature Potential of Uncooled Radial Turbines (77-GT-46) **P 294**

Arora, J. S. Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) **MD 311**

Array Evaluation
An Efficient Algorithm for Evaluating Arrays of Extended Surface **HT 288**

Array Structures
Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 1: Implementation **AM 595**

Arrays
Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) **MD 347**
Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) **HT 352**

Articular Cartilage
The Biomechanical Function of the Collagen Fibril Ultrastructure of Articular Cartilage **BE 105**

Artificial Ventricle System
Simulation of Cardiovascular Dynamics With the All-Pneumatic Artificial Ventricle System as a Replacement of the Myocardial Function **BE 35**

Arwas, E. B. Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (D) **L 285**; (AC) **L 286**

Askew, M. J. The Biomechanical Function of the Collagen Fibril Ultrastructure of Articular Cartilage **BE 105**

Akins, R. E. Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**

Asperity Interactions
Asperity Interactions in EHD Contacts (77-Lub-19) **L 246**; (D) **L 252**; (AC) **L 253**

Asymptotic Boundary Behavior
Determination of Unknown Coefficients in Parabolic Operators from Overspecified Initial-Boundary Data **HT 583**

Asymmetric Branched Cracks
Asymmetric Branching of Cracks (D) **AM 701**; (AC) **AM 702**

Asymptotic Expansions
Asymptotic Methods for a General Finite Width Gas Slider Bearing **L 254**
Leading-Edge Correction for the Supercavitating Flat-Plate Hydrofoil (77-FE-21) **F 276**; (D) (AC) **F 280**

Asymmetric Flow
Flow Field Coupling Between Compression System Components in Asymmetric Flow (77-GT-17) **P 66**

Asymmetric Shaft
Influence of Unequal Pedestal Stiffness on the Instability Regions of a Rotating Asymmetric Shaft **AM 400**

Asymptotic Stability
Stability of a Nonlinear Rectangular Plate **AM 583**

Asymmetric Swirling Flows
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) **P 618**

Atkerson, J. L. Spherical Acrylic Pressure Hulls With Multiple Penetrations (D) **I 271**; (AC) **I 272**

Atkinson, J. The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow **F 210**

Atkinson, J. R. The Wear of High Molecular Weight Polyethylene—Part I: The Wear of Isotropic Polyethylene Against Dry Stainless Steel in Unidirectional Motion **L 208**

Atluri, S. N. Finite Elasticity Solutions Using Hybrid Finite Elements Based on a Complementary Energy Principle (78-WA/APM-1) **AM 539**

Atmospheric Pollution
Motion of a Large Dusty Buoyant Thermal With a Vortex Ring (78-WA/APM-8) **AM 711**

Atmospheric Pressures
Deformation of Polymers During Hydrostatic Extrusion **PVT 400**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) **L 418**

Atmospheric Spray Cooling Systems
Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) **F 65**

Atmospheric Storage Tanks
Stresses in Ruptured Floating Roofs **PVT 291**

Augmented Deflector Exhaust Nozzle
Structural and Cooling Aspects of the Aden Nonaxisymmetric Exhaust Nozzle (77-GT-110) **P 308**

Auslander, D. M. Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) **DS 50**

Austenitic Stainless Steels
Constitutive Modeling of Elevated Temperture Stress Relaxation in Austenitic Stainless Steels (TB) **MT 221**

Auto-Frettage Process
Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Fluid Ends (77-Pet-42) **PVT 39**

Automated Guideway Transit Vehicles
Longitudinal Control of Automated Guideway Transit Vehicles Within Platoons **DS 302**
Steering Controller Design For Automated Guideway Transit Vehicles **DS 1**

Automated Transit Systems
A State-Constrained Approach to Vehicle-Follower Control for Short Headway Automated Transit Systems **DS 291**

Automated Transit Vehicles
Effects of Jerk Limiting on the Stability of Automated Transit Vehicles **DS 298**

Automatic Control Systems
Developments in Nonlinear Controller Synthesis: An Overview **DS 59**

Automatic Design
Automatic Design (GR) **MD 205**

Automatic Matrix Generating Procedure
Model Verification of Mixed Dynamic Systems (77-DET-85) **MD 266**

Automatic Produce-Bagging Machine
Opening and Gripping Mechanism for Automatic Produce-Bagging Machine That Uses Factory-Roll Polyethylene

Net Tubing (GR) **MD 204**

Automobile Vibration Environment
The Prediction of Passenger Riding Comfort From Acceleration Data (77-WA/Aut-6) **DS 34**

Automotive Seats
Identification of the Dynamic Characteristics of a Bench-Type Automotive Seat for the Evaluation of Ride Quality **DS 42**

Automotive Turbine-Transmission Systems
Three-Shaft Automotive Turbine-Transmission Systems of the KTT Type—Performance and Features (77-GT-94) **P 95**

Autorack Cars
Ride Quality of Autorack Cars (77-WA/RT-7) **I 171**

Availability Concept
The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) **P 452**

Average Flow Model
An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) **L 12**

Avitzur, B. Disk and Strip Forging with Side-Surface Foldover—Part 1: Velocity Field and Upper-Bound Analysis (77-WA/Prod-36) **I 421**; Disk and Strip Forging with Side Surface Foldover—Part 2: Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) **I 428**; Limit Analysis of Hollow Disk Forging: Part 1: Upper Bound (77-WA/Prod-2) **I 340**; (D) (AC) **I 345**; Part 2: Lower Bound (77-WA/Prod-3) **I 347**; (D) (AC) **I 345**

Awaji, H. Combined Mode Fracture Toughness Measurement by the Disk Test **MT 175**

Axial Bends
Second Flow in Rotating Bends **P 553**

Axial Compression
Buckling of Short Cylinders Under Combined Loading **AM 574**

Axial Compressive Stress
Stresses in Ruptured Floating Roofs **PVT 291**

Axial Compressors
Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**

Flow Field Coupling Between Compression System Components in Asymmetric Flow (77-GT-17) **P 66**

Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) **P 432**

Prediction of Compressor Performance in Rotating Stall (77-GT-10) **P 1**; (D) **P 13**; (AC) **P 14**

Axial Flow
The Dynamics of Thin Liquid Films in Rotating Tubes: Approximate Analysis **F 187**

The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow (D) **F 377-380**; (AC) **F 380**; **F 210**

An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**

Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) **MD 328**

Stability of a Cluster of Flexible Cylinders in Bounded Axial Flow (D) **AM 455**; (AC) **AM 703**

Axial-Flow Compressor
Boundary-Layer Development on an Axial Flow Compressor Stator Blade (77-GT-11) **P 287**; (D) **P 292**; (AC) **P 293**

A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) **P 698**

Axial Flow Compressors
Torsional Flutter in Stalled Cascade **P 317**

Axial Flow Turbines
Throughflow Calculations for Transonic Axial Flow Turbines **P 212**

Axial Forces
Design of U-Shaped Bellows Considering Low-Cycle Fatigue **PVT 382**

Determination of Admissible Temperature Increases to Prevent Vertical Track Buckling **AM 585**

Finite Extension of an Elastic Strand With a Central Core (78-WA/APM-7) **AM 852**

Impact Buckling of Thin Bar Via Monte Carlo Method **AM 586**

Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) **L 379**; (D) (AC) **L 384**

Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **MT 421**

Axial Impact Buckling
Axial Impact Buckling of a Column with Random Initial Imperfections **AM 361**

Axial Inflow
On Vortex Wind Power (77-WA/FE-20) **F 79**

Axial Magnetic Field
Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid With a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**

Axial Particle Velocity
Initial Response of a Rock Penetrator **AM 559**

Axial Plastic Compressive Wave
Quasi-Bifurcation of Rods Within an Axial Plastic Compressive Wave **AM 100**

Axial Pressure Gradient
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P 676**; (D) **P 688-689**; (AC) **P 689**

Axial Turbulent Wakes
A Theoretical Investigation on the Structure of Fan Wakes (76-WA/FE-22) **F 113**

Axial Velocity
Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**

Free-Forced Convection in the Entry Region of a Heated Straight Pipe **HT 212**

Axial Velocity Distribution
Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**

Axial Wave Numbers
Modal Method for Free Vibration of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**

Axially Symmetric Ducts
Modified Governing Equations for Unsteady Compressible Flow in Ducts **AM 723**

Axiomatic Development
On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/Prod-14) **I 127**

Axisymmetric Analysis
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) **PVT 134**

Axisymmetric Bending
Axisymmetric Bending of Annular Plates (78-WA/APM-27) **AM 834**

Axisymmetric Body-Duct Configuration
Heat Conduction in Axisymmetric Body-Duct Configuration (TB) **HT 555**

Axisymmetric Displacements
Indentation of a Membrane on an Elastic Half Space **AM 320**

Axisymmetric Initial Deflection
Thermal Buckling of an Annular Plate With Axisymmetric Initial Deflection (BN) **AM 693**

Axisymmetric Internal Crack
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) **AM 281**

Axisymmetric Tubes
Steady Flow in Tubes of Slowly Varying Cross Section **AM 475**

Axisymmetrical Free Jet
Solutions of Laminar Jet Flow Problems for Non-Newtonian Power-Law Fluids **F 363**

Axisymmetrical Potential Flow
On the Exact Solution for the Two-Sphere Problem in Axisymmetrical Potential Flow **AM 463**

Axle Assembly
Fatigue Strength and Maintenance of the Wheel-Axle Assembly for the Japanese Fast Train (Shinkansen) **MT 227**

B

Back Pressure Influence
An Investigation of the Influence of Back Pressure on the Diffusion of Mass and Momentum of Fuel in Diesel Spray **P 241**

Backer, S. On the Thermal Effects in a Warp Beam (A Wound-Yarn-Package) (77-TEX-3) **I 8**

Backlash Impact
Rotational Vibration With Backlash: Part 1 (77-DET-105) **MD 363**

Baclic, B. S. A Simplified Formula for Cross-Flow Heat Exchanger Effectiveness (TN) **HT 746**

Bahadur, S. The Economic Impact of Wear on Society (Op) **L 145**; Wear Research and Development (Op) **L 449**

Bahar, L. Y. A Theorem on the Free Vibration of Damped Systems (D) **AM 225**; (AC) **AM 226**

Bair, S. Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) **L 404**; (D) **L 416**; (AC) **L 417**

Bajaj, A. K. Bunifications in Dynamical Systems With Internal Resonance (78-WA/APM-12) **AM 895**

Baker, B. Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAS-54) **I 383**

Baker, L., Jr. Heat Transfer Phenomenology of a Hydrodynamically Unstable Melting System **HT 305**

Balanis, G. N. Elastic Dispersion, Homogeneous Dispersive Media and an Application to Periodic Elastic Media **AM 337**; Low Frequency Bloch Waves for Wave Equations Whose Speed Is a Deterministic, or Randomlike, Periodic Function **AM 331**

Baliga, B. R. Forced Convection Heat Transfer from a Shrouded Fin Array with and without Tip Clearance **HT 572**

Balje, O. E. A Diffusion Factor Correlation for Centrifugal Impeller Stalling (D) **P 601**; (AC) **P 602**; A Flow Model for Centrifugal Compressor Rotors (77-GT-62) **P 148**; High-Temperature Potential of Uncooled Radial Turbines (77-GT-46) **P 294**

Ball Bearings
A High-Speed Rolling-Element Bearing Loss Investigation (77-GT-86) **P 40**; (D) **P 45**; (AC) **P 46**

Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) **L 386**; (D) **L 393**; (AC) **L 394**

Ballistics
Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) **PVT 194**

Ballou, E. V. The Preparation of Calcium Superoxide at Subambient Temperatures and Pressures (77-ENAS-55) **I 26**

Bamberger, E. N. Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-LUB-14) **L 39**

Bammert, K. Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) **P 432**; Measurements of the Performance of an Turbine Stage at Positive and Negative Mass Flow and Rotational Speed (Four-Quadrant Characteristics) (77-GT-14) **P 22**

Band Absorptance
Accurate Spectral Modeling for Infrared Radiation (77-HT-69) **HT 240**

Multi-Dimensional Radiative Transfer in Nongray Gases—General Formulation and the Bulk Radiative Exchange Approximation (77-HT-51) **HT 486**

Theoretical Determination of Band Absorption for Nonrigid Rotation with Applications to CO, NO, N_2O, and CO_2 **HT 230**

Band Heat Source
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/PROD-26) **I 43**

Bansal, G. Structural Designing With Ceramic Materials **P 260**

Bansal, P. N. Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) **MD 558**; Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) **MD 549**; Investigation of Squeeze Film Damper Forces Produced by Circular Centered Orbits (77-GT-30) **P 15**

Bar-Cohen, A. *(editor)* Editorial/Conference Focus **MD 585**

Barash, M. M. Reducing the Temperature at Tool-Chip-Work Contact by Changing the Effective Thermal Conductivity of the Tool (TB) **I 387**

Barber, T. J. Vibratory Forcing Functions Produced by Nonuniform Cascades (77-GT-57) **P 82**

Barker, R. L. A New Hooked Needle Device For Forming Fiber Beards For Length and Strength Measurement (77-Tex-2) **I 5**; An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) **I 1**

Barrett, L. E. Optimum Bearing and Support Damping for Unbalance Response and Stability of Rotating Machinery (77-GT-27) **P 89**

Barrow, G. On a New Model of Oblique Cutting

(77-WA/PROD-6) I 287
Baruch, M. On the Shape Modes in Damped Systems (BN) AM 951
Base Drag
A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) F 443
Base Pressure
Boundary Layer Closure and Heat Transfer in Constant Base Pressure and Simple Wave Guns HT 690
Baskharone, E. A Flow in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) F 31
Bates, J. B., III Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) MD 251
Batra, R. C. Saint-Venant's Principle for a Helical Spring AM 297
Batra, S. K. On the Thermal Effects in a Warp Beam (A Wound-Yarn-Package) (77-TEX-3) I 8
Bauer, B. Parameterschatzverfahren Zur Systemidentifikation (BR) DS 101
Baughn, J. W. Effect of Circumferential Wall Heat Conduction on Boundary Conditions for Heat Transfer in a Circular Tube (TN) HT 537
Baxa, D. E. A Strategy for the Optimum Design of Acoustic Space (77-DET-44) MD 411
Baxter, M. L., Jr. Lattice Contact In Generated Spiral Bevel Gears (77-DET-63) MD 42
Bayer, R. G. Review of Wear Problems in the Computer Industry (77-Lub-4) L 189; (D) L 195-197; (AC) L 198
Beard, J. T. Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) P 497
Beatenbough, P. K. Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) P 576
Beattie, E. C. Development of Gas Turbine Performance Seeking Logic (D) (AC) P 575
Beam Column
Load-Deformation Behavior of Elastic Beam-Columns of Yielding Foundations P 182
Beam Load
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 2: Experimental Investigation (77-DET-53) MD 395; (D) (AC) MD 404
Beams
Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) MD 480
Bending of a Nonlinear Rectangular Beam in Large Deflection (BN) AM 213
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 1 Analysis (77-DET-52) MD 382
The Coupled Response of a Dynamic Element Riding on a Continuously Supported Beam AM 864
Creep Relaxation of a Beam of General Cross Section Subjected to Mechanical and Thermal Loads (TB) MD 626
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) MD 337
Elastic-Plastic Response of 304 Stainless Steel Beams to Impulse Loads (BN) AM 685
Experimental Study of Dispersive Waves in Beam and Rod Using FFT (BN) AM 940
Experimental and Theoretical Study on Magnetoelastic Buckling of a Ferromagnetic Cantilevered Beam-Plate AM 355
Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) MD 667
High Frequency Ultrasonic Evaluation of Ceramics for Gas Turbines P 549
Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates AM 521
Influence of Secondary Effects on Free Torsional Oscillations of Thin-Walled Open Section Beams (BN) AM 881
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) MD 328
The Large Amplitude Vibration of a Hinged Beam (BN) AM 959
Nonlinear Material Damping for Nonsinusoidal Strain AM 883
Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) MD 319
The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity AM 643
Roots of Lambda Matrices (78-WA/APM-4) AM 859
Shear Fracture Propagation by DCB Testing (77-Pet-33) PVT 18
Shear-Stress Formulas and the Shear Center for Curved Beams (BN) AM 438
Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) MD 507
Stress-Strain Analysis of Cyclic Plastic Bending and Torsion MT 157
On the Thermal Effects in a Warp Beam (A Wound-Yarn-Package) (77-TEX-3) I 8
Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-514) MD 514
Bearing Cage Motion
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) L 395
Bearing Clearances
Control of Clearance Effects in Mechanisms (77-WA/DE-2) MD 728
Bearing Damage
Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) MD 229
Bearing Damping
Optimum Bearing and Support Damping for Unbalance Response and Stability of Rotating Machinery (77-GT-27) P 89
Bearing Design
The RAPIDEX Conical Reamer (77-Pet-31) PVT 60
Bearing Heat Generation
Lubrication of High-Speed, Large Bore Tapered-Roller Bearings (77-Lub-13) L 31
Bearing Pedestals
Influence of Unequal Pedestal Stiffness on the Instability Regions of a Rotating Asymmetric Shaft AM 400
Bearing Steel
Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) L 226; (D) L 232, 233; (AC) L 234
Bearings
Analysis of Dynamic Tilt Stiffness and Damping Coefficients of Externally Pressurized Porous Gas Journal Bearings L 359
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) L 287; (D) L 294; (AC) L 295
On the Analytical Solution of Externally Pressurized Porous Gas Journal Bearings (TB) L 442
Asymptotic Methods for a General Finite Width Gas Slider Bearing L 254
Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) L 279; (D) L 285; (AC) L 286
The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) MD 156
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) L 369; (D) (AC) L 377
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) L 167; (D) (AC) L 174
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) MD 549
An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) MD 216
Experiments on the Transient Response of Oil-Film Dampers (77-GT-31) P 30
Flow in Finite-Width, Thrust Bearings Including Inertial Effects I—Laminar Flow L 330; II—Turbulent Flow L 339
A High-Speed Rolling-Element Bearing Loss Investigation (77-GT-86) P 40; (D) P 45; (AC) P 46
On the Influence of Finite Wall Conductance and Inertia Effects of Hydrostatic Thrust Bearing L 271
Review of Wear Problems in the Computer Industry (77-Lub 4) L 189; (D) L 195-197; (AC) L 198
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) MD 696
A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) MD 165
Some Experiments of Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) MD 147
Squeeze Film Flow in Arbitrarily Shaped Journal Bearings Subject to Oscillations L 323
Steady-State Unbalance Response of a Three-Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) MD 563
A Study of the Stability of an Externally-Pressurized Gas-Lubricated Thrust Bearing With a Flexible Damped Support L 364
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) MD 637
Transient Response of a Rotor in Damped Bearings (77-DET-21) MD 257
On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) L 296; (D) L 302; (AC) L 303
Beerbower, A. Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (D) (AC) L 174
Begelinger, A. Wear In Lubricated Journal Bearings L 104
Begin, G. The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) MT 253
Bejan, A. Laminar Free Convection Heat Transfer Through Horizontal Duct Connecting Two Fluid Reservoirs at Different Temperatures (TN) HT 725; Laminar Natural Convection Heat Transfer in a Horizontal Cavity with Different End Temperatures HT 641; Natural Convection in a Horizontal Porous Medium Subjected to an End-to-End Temperature Difference HT 199; Two Thermodynamic Optima in the Design of Sensible Heat Units for Energy Storage HT 708
Bell, A. C. On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/PROD-14) I 127
Bellows
Design of U-Shaped Bellows Considering Low-Cycle Fatigue PVT 382
Belt Tension
Load Distribution in Timing Belts (77-DET-100) MD 208
Belyi, V. A. Methods of Decreasing Wear in Metal-Polymer ontacts L 185; (Er) L 466
Bench-Type Automotive Seat
Identification of the Dynamic Characteristics of a Bench-Type Automotive Seat for the Evaluation of Ride Quality DS 42
Bending
Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structures (77-DET-84) MD 279
Axisymmetric Bending of Annular Plates (78-WA/APM-27) AM 834
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 2: Experimental Investigation (77-DET-53) MD 395; (D) (AC) MD 404
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) MD 374
General Yielding of Charpy V-Notch and Precracked Charpy Specimens MT 183
Influence of Rotatory Inertia on Steady-State Crack Propagation in a Finite Plate Subjected to Out-of-Plane Bending AM 130
Notch Effects, Stress State, and Ductility MT 348
Stress Analysis of Pipe Bends by Ring Elements PVT 112
Stress-Concentration Factors for a Countersunk Hole in a Flat Bar Tension and Transverse Bending (DDM) AM 925
Stress-Strain Analysis of Cyclic Plastic Bending and Torsion MT 157
Thermographic Determination of Fatigue Damage MT 200
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) MD 644
Bending Materials
Simulation of the Influence of Bonding Materials on the Dynamic Behavior of Laminated Composites (78-WA/APM-15) AM 822
Bending Stiffness
Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load AM 636
Bending Strength
Analysis of Leg Loading in Snow Skiing DS 177
Bending Stress
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 1 Analysis (77-DET-52) MD 382
Pressurized Cylindrical Shell With a Rigid Circular Inclusion PVT 158
Stress Concentration in a Stretched Cylindrical Shell With Two Elliptical Holes (78-WA/APM-18) AM 839
Benedict, C. E. Model Formulation of Complex Mechanisms With Multiple Inputs: Part 1—Geometry (77-WA/DE-9) MD 747; Part II—The Dynamic Model (77-WA/DE-10) MD 755; (D) (AC) MD 761
Benedict, R. P. Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) F 265; (D) 274; (AC) F 275

Bennett, J. G. Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**

Bennett, R. G. Interferometric Investigation of Turbulently Fluctuating Temperature in an LMFBR Outlet Plenum Geometry (76-WA/HT-82) **HT 334**

Bennett, W. A. Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) **P 664**; (D) (AC) **P 675**

Benson, R. C. Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**

Bentley, J. M. An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**

Benton, M. Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) **MD 26**

Benthwich, M. On the Exact Solution for the Two-Sphere Problem in Axisymmetrical Potential Flow **AM 463**

Berger, B. S. Solution of Navier's Equation in Cylindrical Curvilinear Coordinates **AM 812**; Steady-State Motion of a Shell of Revolution in an Acoustic Medium (BN) **AM 447**; Transient Motion of an Elastic Shell of Revolution in an Acoustic Medium **AM 149**

Bergles, A. E. Augmentation of Horizontal In-Tube Condensation by Means of Twisted-Tape Inserts and Internally Finned Tubes **HT 17**

Bernstein, M. D. The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-18) **P 363**

Bernussou, J. *(author)* Point Mapping Stability (BR) **AM 456**

Berry, R. D. Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) **HT 352**

Bert, C. W. Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-88) **MD 274**

Bertrand, R. Prediction of Temperature Profiles in Fluid Bed Boilers (76-HT-66) **HT 508**

Bestman, A. R. Heat Transfer in the Biconical and Concentric Spherical Viscometers (TN) **HT 750**

Bevel Gears

The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) **MD 85**

Lattice Contact In Generated Spiral Bevel Gears (77-DET-63) **MD 42**

Bhaskara, R. K. Propagation of a Pulse in a Non-homogeneous Elastic Rod With Varying Cross Section (BN) **AM 942**

Bhattacharyya, S. Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (D) (AC) **L 165**

Bhatti, M. S. Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (TN) **HT 539**

Biaxial Stress-Strain Relation

Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**

Biaxially Stretched Sheets

Void Growth and Local Necking in Biaxially Stretched Sheets **MT 164**

Biconical Spherical Viscometers

Heat Transfer in the Biconical and Concentric Spherical Viscometers (TN) **HT 750**

Bielawa, R. L. An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) **MD 222**

Bifurcation

Bifurcations in Dynamical Systems With Internal Resonance (78-WA/APM-12) **AM 895**

The Hopf Bifurcation and Its Application (BR) **AM 234**

Bilinear Oscillators

The Response of an Oscillator With Bilinear Hysteresis to Stationary Random Excitation **AM 923**

Billet Temperature

Deformation of Polymers During Hydrostatic Extrusion **PVT 400**

Billimoria, H. D. Stiffness Coefficients and Allowable Loads for Nozzles in Flat-Bottom Storage Tanks (77-PVP-19) **PVT 389**

Binary Mixture

Plane Progressive Waves in a Binary Mixture of Linear Elastic Materials **AM 493**

Binsley, R. L. Aerodynamic Design and Verification of a Two-Stage Turbine With a Supersonic First Stage **P 197**

Biological Body

A Thermodynamic Model of Biological Body: Muscle Mechanics **BE 14**

Biological Tissue

Analytical Solutions to the Problem of Transient Heat Transfer in Living Tissue **BE 202**

Biomechanical Function

The Biomechanical Function of the Collagen Fibril Ultrastructure of Articular Cartilage **BE 105**

Biomechanics

Graphical Interpretation of the Solution to the Redundant Problem in Biomechanics **BE 159**

Birchak, M. J. Phase Change in Liquid Face Seals (77-Lub-12) **L 74**; (D) (AC) **L 79**

Bit Design

Diamond Compact Cutter Studies for Geothermal Bit Design **PVT 406**

Bits

CAVIJET™ Augmented Deep-Hole Drilling Bits (77-Pet-54) **PVT 52**

Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) **PVT 74**

A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) **PVT 164**

The RAPIDEX Conical Reamer (77-Pet-31) **PVT 60**

Black Chrome Coatings

Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/SOL-1) **P 489**

Black, J. T. Theory of Linear Continuous Extrusion—Linex (77-WA/PROD-17) **I 37**

Blade Loading

Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**

Blade Packets

Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 660**

Bladed-Disk Assemblies

An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) **MD 208**

Bladed Disk Flexibility

Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) **P 647**

Blades

Aerodynamic Design and Verification of a Two-Stage Turbines With a Supersonic First Stage **P 197**

Air Model Tests of Labyrinth Seal Forces on a Whirling Rotor **P 533**

Boundary-Layer Development on an Axial-Flow Compressor Stator Blade (77-GT-11) **P 287**; (D) **P 292**; (AC) **P 293**

Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) **MD 173**

On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D) (AC) **P 591**

A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) **P 592**; (D) **P 601-602**; (AC) **P 602**

Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) **MD 520**

Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**

An Experimental Study of Three-Dimensional Characteristics of Propeller Wakes Under Stalling Conditions (D) **F 141**; (AC) **F 142**

An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P 676**; (D) **P 688-689**; (AC) **P 689**

Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/PROD-22) **I 119**

Film Cooling of a Gas Turbine Blade **P 476**

The Influence of Droplet Size on the Turbine Blading Erosion Hazard **P 561**

Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) **P 432**

Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) **P 655**

Moisture Measurements in a Low Pressure Steam Turbine Using a Laser Light Scattering Probe **P 544**

A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) **P 698**

A Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) **MD 470**

Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) **P 664**; (D) (AC) **P 675**

Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**

Some Effects of Mechanically-Produced Unsteady Boundary Layer Flows on Convective Heat Transfer Augmentation **HT 25**

Tailoring the Waveform of a Periodic Flow With a Programmable Damper **F 287**

Torsional Flutter in Stalled Cascade **P 317**

Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) **MD 528**

Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) **MD 183**

Vortex Sheet Analysis of the Giromill **F 340**

Blanco, A. Investigation of Squeeze Film Damper Forces Produced by Circular Centered Orbits (77-GT-30) **P 15**

Blasius-Type Boundary Layers

Transition Behavior of a Blasius-Type Boundary Layer Subjected to Uniform Blowing or Suction (BN) **AM 450**

Bleiloch, A. Material Substitution: Availability, Energy and Environmental Factors (CR) **MT 1**

Blended Fibers

Combing of Opening Room Blends of Cotton and Polyester (77-TEX-5) **I 21**

Blended Polyester/Cotton Yarns

The Charactetics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-TEX-4) **I 13**

Blister Skin Thickness

Helium Blistering in Metals (78-Mat-5) **MT 411**

Bloch Waves

Low Frequency Bloch Waves for Wave Equations Whose Speed Is a Deterministic, or Randomlike, Periodic Function **AM 331**

Block Forms

Some Sufficient and Some Necessary Conditions for the Stability of Multivariable Systems **DS 214**

Blockages

Turbulent Heat Transfer Downstream of an Unsymmetric Blockage in a Tube **HT 588**

Blood Circulation

Simulation of Cardiovascular Dynamics With the All-Pneumatic Artificial Ventricle System as a Replacement of the Myocardial Function **BE 35**

Blood Pump

A Development Program to Determine the Feasibility of Using a Compact, Efficient Solenoid as an Actuator for Driving a Blood Pump **MD 206**

Blood Suspension

Red Cell Motion and Deformation in the Microcirculation **BE 139**

Blood Vessels

The Behavior of Gas Bubbles in the Casson Fluid **AM 37**

Blottner, F. G. *(reviewer)* Numerical Methods in Fluid Dynamics (BR) **AM 704**

Blowing RATES

Adiabatic Wall Temperature and Heat Transfer Downstream of Injection Through Two Rows of Holes (77-GT-50) **P 303**

Bluff-Body Flame Stabilizer

Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**

Bodner, S. R. Viscoplastic Constitutive Equations for Copper With Strain Rate History and Temperature Effects **MT 388**

Body-Duct Configuration

Heat Conduction in Axisymmetric Body-Duct Configuration (TN) **HT 555**

Body Heat Loss

Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) **BE 7**

Boffey, D. A. A Study of the Stability of an Externally-Pressurized Gas-Lubricated Thrust Bearing With a Flexible Damped Support **L 364**

Bogdanoff, J. L. A New Cumulative Damage Model: Part 1 **AM 248**; A New Cumulative Damage Model: Part 2 **AM 251**; Part 3 (78-WA/APM-19) **AM 733**

Bogy, D. B. Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**; Wave Propagation and Instability in a Circular Semi-Infinite Liquid Jet Harmonically Forced at the Nozzle **AM 469**

Bohrer, T. H. Experiments and Universal Growth Relations for Vapor Bubbles With Microlayers **HT 41**

Boiler Feed Pump

Torsional Vibrations of a Boiler Feed Pump (77-DET-28) **MD 637**

Boiler and Pressure Vessel Code
The Past, Present and Future of Section X of the ASME Boiler and Pressure Vessel Code **PVT 219**
Boilers
Considerations When Converting Industrial Plants to Coal Firing (77-IPC-FU-1) **P 374**
A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) **P 511**
Low NOx Combustion of Paraho Shale Oil in a 45 MW Utility Boiler (77-WA/Fu-1) **P 393**
Prediction of Temperature Profiles in Fluid Bed Boilers (76-HT-66) **HT 508**
Boiling
On the Influence of Surface Conditions in Nucleate Boiling—the Concept of Bubble Flux Density **HT 618**
Magnetic Field Effects on Bubble Growth in Boiling Liquid Metals **HT 466**
Boiling Data Measurements
Measurements of Transition Boiling Data for Water Under Forced Convective Conditions (TN) **HT 382**
Boiling Heat Transfer
Bubble Growth in Variable Pressure Fields **HT 453**
Experimental Study on Bubble Nucleation in the Oscillating Pressure Field (77-HT-22) **HT 480**
Bond Graph
A Bond Graph Modeling Philosophy for Thermofluid Systems **DS 76**
Bond Graphs
On Gyrobondgraphs and Their Uses **DS 76**
Pseudo Bond Graphs for Thermal Energy Transport **DS 165**
Bonde, D. H. Pressurized Cylindrical Shell With a Rigid Circular Inclusion **PVT 158**
Bonded Joints
Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) **MT 25**
Fatigue Crack Growth of Bondline Cracks in Structural Bonded Joints **MT 39**
Bonded Structures
Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) **MT 16**
A Parametric Study of Fatigue Crack Growth Behavior in Adhesively Bonded Metallic Structures (D) (AC) **MT 223**
Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) **MT 57**
Bondline Cracks
Fatigue Crack Growth of Bondline Cracks in Structural Bonded Joints **MT 39**
Bone Accelerations
In-Vivo Mechanical Properties of Soft Tissue Covering Bony Prominences **BE 194**
Bone Covering
The Biomechanical Function of the Collagen Fibril Ultrastructure of Articular Cartilage **BE 105**
Bony Prominences
In-Vivo Mechanical Properties of Soft Tissue Covering Bony Prominences **BE 194**
Book Reviews
Applications of the Theory of Plasticity in Soil Mechanics **AM 705**
Elasto-Hydrodynamic Lubrication **L 447**
Experimental Stress Analysis (BR) **AM 968**
Finite Element Analysis in Fluid Dynamics **DS 347**
The Finite Element Method for Elliptic Problems **AM 968**
Finite Element Methods in Engineering **MD 591**
A First Course in Continuum Mechanics (BR) **AM 969**
Helicopter Dynamics (BR) **AM 966**
Integral Equation Methods in Potential Theory and Elastostatic **AM 964**
An Introduction to Thermomechanics (BR) **AM 966**
Numerical Analysis of Spectral Methods: Theory and Application **AM 969**
Numerical Methods in Fluid Dynamics **AM 704**
Orthogonal Machining of Bone **BE 122**
Sound Waves in Solids (BR) **AM 967**
Stabilität und Matrizen (in German) **AM 704**
Stress Waves in Nonelastic Solids **AM 970**
Structural and Geotechnical Mechanics **AM 968**
Unidirectional Wave Motions (BR) **AM 969**
Waves on Water of Variable Depth—Lecture Notes in Physics, Vol. 64 **AM 705**
Booton, M. Buckling of Short Cylinders Under Combined Loading **AM 574**
Bore Tapered-Roller Bearings
Lubrication of High-Speed, Large Bore Tapered-Roller Bearings (77-Lub-13) **L 31**
Borsholes
Economic Factors of Mechanical Raise Boring (77-Pet-29) **PVT 98**
Boresi, A. Boundary Conditions at a Cone-Cylinder Shell Junction (BN) **AM 938**
Botman, M. An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) **MD 208**; Experiments on the Transient Response of Oil-Film Dampers (77-GT-31) **P 30**
Bottoming Plants
Steam Bottoming Plants for Combined Cycles **P 203**
Boundary Behavior
Determination of Unknown Coefficients in Parabolic Operators from Overspecified Initial-Boundary Data **HT 503**
Boundary Conditions
Analysis of Branched Cracks **AM 797**
Analytic Solutions to the Heat Equation Involving a Moving Boundary with Applications to the Change of Phase Problem (the Inverse Stefan Problem) **HT 300**
An Approximate Solution for the Fundamental Frequency of Plates (BN) **AM 936**
Boundary Conditions at a Cone-Cylinder Shell Junction (BN) **AM 938**
Buckling of Short Cylinders Under Combined Loading **AM 574**
Calculation of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (76-WA/FE-31) **F 355**
Combined Mode Fracture Toughness Measurement by the Disk Test **MT 175**
The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transients **HT 120**
Effect of Circumferential Wall Heat Conduction on Boundary Conditions for Heat Transfer in a Circular Tube (TN) **HT 537**
Effect of an Elevated Pipeline on Moss Covered Ground Temperature **HT 363**
Effect of Stress-Free Edges in Plane Shear of a Rectangular Orthotropic Region **AM 307**
The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact—Part II: Starved Conditions **L 353**
An Experimental Study of First-Passage Failure of a Randomly Excited Structure (78-WA/APM-14) **AM 917**
Forced Vibration of Continuous System With Nonlinear Boundary Conditions (77-DET-80) **MD 487**
Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) **MD 667**
A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**
Granular Material Flow in Two-Dimensional Hoppers **AM 43**
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) **MD 328**
A Note on the General Formulation of Phase Change Problem as Heat Conduction Problem with a Moving Heat Source (TN) **HT 370**
A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 487**
Perturbation Solution of the 1-D Reynolds Equation With Slip Boundary Conditions **L 70**
Pipes Supported at Both Ends Cannot Flutter **AM 619**
Pressurized Cylindrical Shell With a Rigid Circular Inclusion **PVT 158**
Reflection of Acceleration Waves in an Elastic-Plastic Medium **AM 51**
Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**
Solution of Navier's Equation in Cylindrical Curvilinear Coordinates **AM 812**
Steady-State Motion of a Shell of Revolution in an Acoustic Medium (BN) **AM 447**
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) **MD 630**
Stress Singularity at the Corner of a Wedge-Shaped Crack or Inclusion (78-WA/APM-6) **AM 791**
Thermal Response of Slabs Subjected to Non-Symmetric Convective Heat Transfer (78-DE-8) **MD 706**
Thermohydrodynamic Analysis for Laminar Flow Journal Bearing (TB) **L 510**
A Three-Dimensional Treatment of Transient Thermal Stresses in a Circular Cylinder Due to an Arbitrary Heat Supply **AM 817**
Transient Motion of an Elastic Shell of Revolution in an Acoustic Medium **AM 149**
Transient Response of Continuous Elastic Structures With Viscous Damping (78-WA/APM-5) **AM 877**
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) **MD 183**
Vibrations and Dynamic Response of Membranes With Arbitrary Shape **AM 153**
Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-69) **PVT 179**
Boundary Determinations
Application of The Parameter Plane Method to The Analysis of Directional Stability of Tractor-Semitrailers **DS 9**
Boundary Fixing Method
Numerical Method for Multi-Dimensional Freezing Problems in Arbitrary Domains **HT 294**
Boundary-Initial Value
One Dimensional, Linear Dynamic Electromechanical Responses of Ferroelectric Ceramics **AM 49**
Boundary-Integral Equation Method
Numerical Analysis of Time Dependant Inelastic Deformation in Metallic Media Using the Boundary-Integral Equation Method **AM 785**
Boundary Interfaces
Combined Conductive and Radiative Heat Transfer in an Absorbing and Scattering Infinite Slab (77-HT-50) **HT 98**
Boundary Layer Analysis
Correlation Equations for Turbulent Thermal Convection in a Horizontal Fluid Layer Heated Internally and from Below **HT 416**
Boundary Layer Closures
Boundary Layer Closure and Heat Transfer in Constant Base Pressure and Simple Wave Guns **HT 690**
Boundary-Layer Development
Boundary-Layer Development on an Axial-Flow Compressor Stator Blade (77-GT-11) **P 287**; (D) **P 292**; (AC) **P 293**
Boundary Layer Equations
Prediction of Incompressible Turbulent Separating Flow (78-WA/FE-4) **F 427**
Boundary Layer Flows
Some Effects of Mechanically-Produced Unsteady Boundary Layer Flows on Convective Heat Transfer Augmentation **HT 25**
Boundary Layer Transfer
Laminar Boundary Layer Transfer over Rotating Bodies in Forced Flow **HT 496**
Boundary-Layer Transition
The Effects of Free-Stream Turbulence Intensity and Velocity Distribution on Heat Transfer to Curved Surfaces (77-GT-48) **P 159**
Boundary Layers
Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) **F 265**; (D) **F 274**; (AC) **F 275**
Asymptotic Methods for a General Finite Width Gas Slider Bearing **L 254**
Boundary Layer Calculation for Analysis and Design **F 232**
Bubble Growth in Variable Pressure Fields **HT 453**
The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (D) **F 15**; (AC) **F 16 F 10**
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**
Consolidation in Compressible Mixtures **AM 727**
Convection in an Enclosure-Source and Sink Located Along a Single Horizontal Boundary **HT 205**
A Correlation for Laminar Hydrodynamic Entry Length Solutions for Circular and Noncircular Ducts **F 177**
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D) (AC) **P 591**
Developing Region of Laminar Jets With Uniform Exit Velocity Profiles **F 55**
Development of Wall and Free Plumes Above a Heated Vertical Plate **HT 184**
Effect of Free-Stream Turbulence on Heat Transfer Through a Turbulent Boundary Layer **HT 671**
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) **L 167**; (D) (AC) **L 174**
Experimental Heat Transfer Behavior of a Turbulent Boundary Layer on a Rough Surface With Blowing **HT 134**
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P**

676; (D) P 688-689; (AC) P 689
Experiments on the Onset of Longitudinal Vortices in Horizontal Blasius Flow Heated from Below HT 71
Flow and Heat Transfer in Convectively Cooled Underground Electric Cable Systems: Part 2—Temperature Distributions and Heat Transfer Correlations (76-WA/HT-42) HT 38
A Flow Model for Centrifugal Compressor Rotors (77-GT-62) P 148
Forced Convection Heat Transfer from Nonisothermal Thin Needles HT 358
The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments PVT 297
Free-Forced Convection in the Entry Region of a Heated Straight Pipe HT 212
Heat Transfer During Piston Compression HT 527
Heat Transfer and Shear Stress on a Heated Cone (BN) AM 952
Influence of the Side Walls on the Turbulent Center-Plane Boundary-Layer in a Square Duct F 91
Interacting Turbulent Boundary Layer Over a Wavy Wall HT 678
Laminar Mixed-Mode, Forced and Free, Diffusion Flames HT 253
Laminar Shear Layer Due to a Thin Flat Plate Oscillating With Zero Mean Velocity (78-WA/FE-16) F 367
A Local Nonsimilarity Analysis of Free Convection From a Horizontal Cylindrical Surface (TN) HT 185
Measurements of Skewed Boundary Layers in a Curved Duct With Variation in Streamwise Pressure Gradient (TB) F 124
A Method for Testing Cascades with Converging Sidewalls P 457
Predictive Capabilities of Series Solutions for Laminar Free Convection Boundary Layer Heat Transfer (TN) HT 160
A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages F 180
Radial Heat Transfer and Critical Biot Number With Radiation, Uniform Surface Heat Generation, and Curvature Effects in Convection (TN) HT 374
Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow F 215
A Simple Integral Approach to Turbulent Thermal Boundary Layer Flow (TN) HT 744
Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) HT 648
Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) F 477
Transition Behavior of a Blasius-Type Boundary Layer Subjected to Uniform Blowing or Suction (BN) AM 450
Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) F 37; (D) F 45; (AC) F 46; (D) F 375; (AC) F 376
Turbulence Measurements in a Separated and Reattached Flow Over a Blunt Flat Plate F 224
Variable Viscosity Effect on the Laminar Water Boundary Layer on Heated Cones AM 481

Boundary Location
Measurement of the Elastic-Plastic Boundary Around Cold-worked Fastener Holes (78-WA/APM-2) AM 515

Boundary Lubricant
The Conflicting Roles of Carbontetrachloride as a Boundary Lubricant (77-WA/PROD-7) I 244

Boundary Lubrication
Wear In Lubricated Journal Bearings L 104

Boundary Tracking Optimization Algorithm
A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) MD 292

Bounded Axial Flow
Stability of a Cluster of Flexible Cylinders in Bounded Axial Flow (D) AM 455; (AC) AM 703

Bowen C. W. The Practical Significance of Designing to Gear Pitting Fatigue Life Criteria (77-DET-122) MD 46

Bowen, R. M. On the Behavior of Acceleration Waves in Elastic Dielectrics With Internal State Variables AM 745; Plane Progressive Waves in a Binary Mixture of Linear Elastic Materials AM 453

Bowers, H. I. Power System Economics: On Selection of Engineering Alternatives (D) (AC) P 346

Bowman, E. K. *(author)* Opening and Gripping Mechanism for Automatic Produce-Bagging Machine That Uses Factory-Roll Polyethylene Net Tubing (GR) MD 204

Bowyer, J. M., Jr. Transient Analysis of a Permeable Thermal Barrier System (77-DE-24) MD 127

Boykin, W. H., Jr. Equivalence of a Constrained Minimum Weight and Maximum Column Buckling Load Problem With Solution AM 159

Boynton, J. L. Aerodynamic Design and Verification of a Two-Stage Turbine With a Supersonic First Stage P 197

Bradley, M. R. Stress-Intensity Factors for Arbitrarily Oriented Cracks in Shallow Shells AM 135

Bradley, W. L. Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/PROD-29) I 217

Bradshaw, P. Effect of Free-Stream Turbulence on Heat Transfer Through a Turbulent Boundary Layer HT 67; Influence of the Side Walls on the Turbulent Center-Plane Boundary-Layer in a Square Duct F 91

Brain Tissue
Nonlinear Constitutive Relations for Human Brain Tissue BE 44

Brake Materials
Wear Studies on Aircraft Brake Materials L 98

Brakes
Straight-Air Disk Brake Systems for Heavy Vehicles (77-DE-23) MD 113

Bramwell, A. R. S. *(author)* Helicopter Dynamics (BR) AM 966

Branched Cracks
Analysis of Branched Cracks AM 797
Asymmetric Branching of Cracks (D) AM 701; (AC) AM 702

Brankov, G. A Thermodynamic Model of Biological Body: Muscle Mechanics BE 14

Branover, H. *(editor)* MHD Flows and Turbulence (BR) AM 232

Brass Deformation
Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/PROD-29) I 217

Bratton, R. J. Progress on Ceramic Rotor Blade Development for Industrial Gas Turbines (77-GT-42) P 58

Bray, D. E. Detection of Flaws in Railroad Wheels Using Acoustic Signatures (D) (AC) I 466

Brazed Tension Regenerator
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) P 576

Brazing Technique
Stratapax Drill Bit for Gulf Coast Drilling (77-Pet-74) (TB) PVT 234

Breakage
Chipping and Breakage of Carbide Tools I 403

Brennen, C. Experiments on the Dynamic Behavior of Cavitating Pumps F 166; Granular Material Flow in Two-Dimensional Hoppers AM 43

Brentnall, W. D. High Frequency Ultrasonic Evaluation of Ceramics for Gas Turbines P 549

Bridge Girders
Optimum Design of Bridge Girders for Electric Overhead Traveling Cranes (76-WA/DE-28) I 375

Bridwell, H. C. Stratapax Drill Bit for Gulf Coast Drilling (77-Pet-74) (TB) PVT 234

Brief Notes
An Approximate Solution for the Fundamental Frequency of Plates (BN) AM 936
Bending of a Nonlinear Rectangular Beam in Large Deflection AM 213
Boundary Conditions at a Cone-Cylinder Shell Junction (BN) AM 938
Collocation Solution for Point-Supported Square Plates (BN) AM 424
A Comparison of Deformation and Flow Theories Under Dynamic Loading Conditions (BN) AM 431
On the Contact Problem of a Highly Inflated Spherical Nonlinear Membrane AM 202
Cylindrical Anisotropic Waves in a Nonhomogeneous Material AM 687
Datum Line Fixation for Linear Proportional Weirs (BN) AM 441
Divergence Buckling of a Simple Frame, Subject to a Follower Force (BN) AM 426
Use of Dynamic Absorbers to Control Parametric Instabilities of a Pipe (BN) AM 949
The Dynamic Analysis of Shallow Spherical Shells AM 690
The Dynamic Hole Expansion Problem for a Plate of Elastic-Perfectly Plastic Material (BN) AM 961
Dynamically Induced Interfacial Stresses in Fibrous Composites (BN) AM 442
Effect of Strain Hardening on the Large Plastic Deformation of a Cantilever (BN) AM 953
Eigenfunction Solutions for the Flexure of Clamped Rectangular Plates Lying on an Elastic Foundation AM 211
Elastic-Plastic Plate With Arbitrary Poisson's Ratio AM 205
Elastic-Plastic Response of 304 Stainless Steel Beams to Impulse Loads AM 685
On the Estimation of a Crack Fracture Parameter by Long-Wavelength Scattering (BN) AM 453
An Euler Buckling Eigensystem for a Nonprismatic Strut (BN) AM 439
Experimental Study of Dispersive Waves in Beam and Rod Using FFT (BN) AM 940
Finite-Difference Solution for the Uniaxial Endochronic Viscoplastic Wave Problem AM 221
On the Flexural Rigidity of a Micropolar Elastic Circular Cylinder (BN) AM 429
A Flow Potential Function for Hyperbolic Sine Creep AM 679
Fluid Dynamics of the Elliptic Porous Slider (BN) AM 435
Free Convection Effects on Stokes' Problem for a Vertical Plate in Rarefied Gas-Medium AM 697
Heat Transfer and Shear Stress on a Heated Cone (BN) AM 952
Influence of Secondary Effects on Free Torsional Oscillations of Thin-Walled Open Section Beams AM 681
The Influences of the Retardation Time of the Heat Flux on Pulse Propagation (BN) AM 433
Inner Radius Expansion of a Cylinder or a Sphere Under Cold Working AM 198
Inviscid Rotational Flow Through Sprays (BN) AM 934
The Large Amplitude Vibration of a Hinged Beam (BN) AM 950
Leibnitz's Rule and the J-Integrals (BN) AM 425
Lower Bounds for Gravest Torsional Frequencies AM 197
Nonlinear Flexural Vibration of an Elastic Ring (BN) AM 428
A Note on Nodal Lines of Rectangular Plates AM 691
A Note on the Reaction at Simply Supported Square Corners AM 217
A Note on the Stability of a Gyrostat With a Fixed Point AM 676
Observations on Numerical Modeling of an Obtuse Corner of a Simply Supported Plate AM 689
Oscillation Modes in Superposed Fluids AM 204
A Perturbation Method for Studying Heat Conduction in Solid With Random Conductivity (BN) AM 933
Photoelastic Analysis of a Composite Prism Subjected to Partial Compression (BN) AM 436
Postbuckling Ring Analysis AM 208
Propagation Fronts Arising From the Impulsive Excitation of Orthogonally Woven Cloth and Nets (BN) AM 957
A Quadrature Representation of the Viscoelastic Analogy in the Frequency Domain (BN) AM 955
A Reexamination of Miklowitz-Kolsky Model AM 218
Response of a Rigid-Plastic Circular Plate in Contact With Newtonian Fluid AM 199
Riemann-Integral Solutions for the Plastic Slip-Line Fields Around Elliptical Holes AM 678
On Rigid Elliptic Inclusions in Orthotropic Solids AM 683
On the Shape Modes in Damped Systems (BN) AM 951
Shear-Stress Formulas and the Shear Center for Curved Beams (BN) AM 436
Snap-Buckling of Orthotropic Shallow Spherical Shells (BN) AM 445
Spherical Indentation of Nonhomogeneous Materials (BN) AM 944
Stability of Polar-Orthotropic Sector Plates (BN) AM 448
Stability of a Rectangular Simply Supported Plate Subjected to Nonincreasing Tangential Follower Forces AM 223
Steady-State Motion of a Shell of Revolution in an Acoustic Medium (BN) AM 447
Stokes Flow Due to Circular Scraping (BN) AM 956
Strain Energy Minimization Leading to Timoshenko's Clamped Rectangular Plate Solution (BN) AM 948
Stresses in a Solidifying Semitransparent Cylindrical Medium by Conduction and Radiation (BN) AM 946
Successive Finite Rotations (BN) AM 945
Thermal Buckling of an Annular Plate With Axisymmetric Initial Deflection AM 693
Transition Behavior of a Blasius-Type Boundary Layer Subjected to Uniform Blowing or Suction (BN) AM 450
On Uniform Convergence of the Finite-Element Method AM 210
Unsteady Transonic Thin-Airfoil Theory for Power-Law Upwash (BN) AM 440
On the Variation of Timoshenko's Shear Coefficient With

Frequency **AM 695**
Vibration Analysis of Circular Plates With Eccentric Hole **AM 215**
The Viscous Sublayer in a Streamwise Corner **AM 219**
Wheel Rotations and Trailer Dynamics **AM 206**
Brittle Fracture
Angled Elliptic Notch Problem in Compression and Tension **AM 258**
Contrasting Fracture Models For Granite Under Dynamic Loading **MT 287**
Structural Designing With Ceramic Materials **P 260**
Brittle Materials
A Weakest-Link Model for the Prediction of Fatigue Crack Growth Rate **MT 170**
Brittle Solids
Analysis of Branched Cracks **AM 797**
Sudder Appearance of a Crack in a Stretched Finite Strip **AM 277**
Broad Band Random Parametric Excitation
Stationary Response of a Randomly Parametric Excited Nonlinear System (78-WA/APM-13) **AM 910**
Broadband Lung Reflection Data
Noninvasive Inference of Airway Network Geometry From Broadband Lung Reflection Data **3 vx31**
Brock, J. E. An Euler Buckling Eigensystem for a Nonprismatic Strut (BN) **AM 439**; Lower Bounds for Gravest Torsional Frequencies (BN) **AM 197**
Brock, L. M. The Effect of a Thin Layer Surface Inhomogeneity on Dynamic Surface Response **AM 95**
Brosseau, T. L. Reduction of Heat Transfer to High Velocity Gun Barrels by Wear-Reducing Additives (77-HT-19) **HT 697**
Brown, A. The Effects of Free-Stream Turbulence Intensity and Velocity Distribution on Heat Transfer to Curved Surfaces (77-GT-48) **P 159**
Brown, K. J. The Wear of High Molecular Weight Polyethylene—Part I: The Wear of Isotropic Polyethylene Against Dry Stainless Steel in Unidirectional Motion **L 208**
Brown, K. W. Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) **MD 520**
Brown, M. H. An Optical Scanning Technique for Measuring Fiber Size (77-TEX-1) **I 1**
Brown, P. F., Jr. Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (D) **L 233**; (AC) **L 234**
Brundrett, E. The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (D) **F 15**; (AC) **F 16** **F 10**
Brussat, T. R. Fatigue Crack Growth of Bondline Cracks in Structural Bonded Joints **MT 39**
Bubble Behavior
Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**
Bubble Flux Density
On the Influence of Surface Conditions in Nucleate Boiling—the Concept of Bubble Flux Density **HT 618**
Spatial Distribution of Active Sites and Bubble Flux Density **HT 56**
Bubble Growth
Bubble Growth in Variable Pressure Fields **HT 453**
Magnetic Field Effects on Bubble Growth in Boiling Liquid Metals **HT 466**
Bubble Motion
The Behavior of Gas Bubbles in the Casson Fluid **AM 37**
Bubble Nucleation
Experimental Study on Bubble Nucleation in the Oscillating Pressure Field (77-HT-22) **HT 460**
Bubbles
Experiments and Universal Growth Relations for Vapor Bubbles With Microlayers **HT 41**
Helium Blistering in Metals (78-Mat-5) **MT 411**
Bucco, D. The Dynamic Analysis of Shallow Spherical Shells (BN) **AM 690**
Buchanan, G. R. Cylindrical Anisotropic Waves in a Nonhomogeneous Material (BN) **AM 687**
Buchheit, R. D. Influence of Selenium and Tellurium on the Fatigue of Low-Carbon Steel (TB) **MT 216**
Bucklus, R. O. Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) **HT 665**; A Model for Flame Propagation in Low Volatile Coal Dust-Air Mixtures (77-HT-18) **HT 105**
Buckle Arrestors
Propagating Buckle Arrestors for Offshore Pipelines **PVT 206**
Buckley, F. T., Jr. A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) **F 443**; A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) **F 434**; A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-FE-15) **F 439**
Buckling
Application of Stress Functions to Initial Stress Problems **AM 350**
Axial Impact Buckling of a Column with Random Initial Imperfections **AM 361**
Buckling of Short Cylinders Under Combined Loading **AM 574**
Determination of Admissible Temperature Increases to Prevent Vertical Track Buckling **AM 565**
Divergence Buckling of a Simple Frame, Subject to a Follower Force (BN) **AM 426**
Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**
Elastic and Elastic-Plastic Buckling of Internally Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) **PVT 335**
An Euler Buckling Eigensystem for a Nonprismatic Strut (BN) **AM 439**
Experimental and Theoretical Study on Magnetoelastic Buckling of a Ferromagnetic Cantilevered Beam-Plate **AM 355**
Impact Buckling of Thin Bar Via Monte Carlo Method **AM 586**
Optimal Shape of Shallow Circular Arches Against Snap-Buckling **AM 591**
Postbuckling Ring Analysis (BN) **AM 208**
Rules and Methods of Stress and Stability Calculations in the Presence of Creep (DDM) **AM 669**
Snap-Buckling of Orthotropic Shallow Spherical Shells (BN) **AM 445**
Stresses in Ruptured Floating Roofs **PVT 291**
Thermal Buckling of an Annular Plate With Axisymmetric Initial Deflection (BN) **AM 693**
Buckling Load Problem
Equivalence of a Constrained Minimum Weight and Maximum Column Buckling Load Problem With Solution **AM 159**
Buckling Modes
Quasi-Bifurcation of Rods Within an Axial Plastic Compressive Wave **AM 100**
Budiansky, B. Analysis of Closure in Fatigue Crack Growth **AM 267**; Analysis of Sheet Metal Stamping by a Finite-Element Method **AM 73**; On the Estimation of a Crack Fracture Parameter by Long-Wavelength Scattering (BN) **AM 453**; Postbuckling Ring Analysis (BN) **AM 208**
Building Vibration Control
Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structures (77-DET-84) **MD 279**
Bulanowski, E. A. A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) **MD 165**
Bulge Tests
Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **MT 421**
Bulk Flow
Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow **F 215**; (D) (AC) **F 377**
Bulk Radiative Exchange Approximation
Multi-Dimensional Radiative Transfer in Nongray Gases—General Formulation and the Bulk Radiative Exchange Approximation (77-HT-51) **HT 486**
Bullock, R. L. Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) **I 311**; (D) **I 316**; (AC) **I 317**
Buono, D. F. Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) **MD 558**
Buoyancy
Convection in a Porous Medium Heated from Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient (77-HT-56) **HT 448**
Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) **PVT 200**
The Effect of Buoyancy on the Turbulence Structure of Vertical Round Jets **HT 659**
Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**
Buoyancy Boundary Layers
Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) **HT 648**
Buoyancy Induced Transition
An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition from Laminar Forced Convection to Turbulent Free Convection over a Horizontal Isothermally Heated Plate **HT 429**
Buoyant Cinders
An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**
Buoyant Inflated Cantilevers
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**
Buoyant Thermal
Motion of a Large Dusty Buoyant Thermal With A Vortex Ring (78-WA/APM-8) **AM 711**
Buoyant Jet Entrainment
Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**
Bupara, S. S. A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) **L 395**
Burn-Induced Leakage
Measurement of Burn-Induced Leakage of Macromolecules in Living Tissue **BE 153**
Burn Injury
Therapeutic Effects of Postburn Cooling **BE 149**
Burning Rate Measurements
An Investigation of the Laminar Overfire Region Along Upright Surfaces (77-HT-68) **HT 112**
Burnside, O. H. Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) **I 273**
Burrows, C. R. A note on the Active Compensation of a Flexibly Mounted Stabilized Platform (TB) **DS 92**
Bursting Pressure
Bursting Pressure as the Basis for Cylinder Design **PVT 374**
Burton, R. A. Thermoelastic Effects in Fricitonally Heated Line Contact of Slablike Bodies (77-Lub-21) **L 136**; The Thermoelastic Patch Contact Problem for Large Peclet Number (77-Lub-32) **L 65**
Burton, R. C. The Effects of Free-Stream Turbulence Intensity and Velocity Distribution on Heat Transfer to Curved Surfaces (77-GT-48) **P 159**
Burton, T. D. Noclinear Kinematics of Wheel-Rail Contact **AM 664**
Bussell, W. H. *(author)* Automatic Design (GR) **MD 205**
Butt Welding
Thermal Stresses in a Submerged-Arc Welded Joint Considering Phase Transformations **MT 356**
Button, B. L. Gas Flow Through Cracks **F 453**
Buzek, J. R. Stresses in Ruptured Floating Roofs **PVT 291**
Byrne, R. High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) **I 49**

C

Cables
Flow and Heat Transfer in Convectively Cooled Underground Electric Cable Systems: Part 1—Velocity Distributions and Pressure Drop Correlations (76-WA/HT-45) **HT 30**; Part 2—Temperature Distributions and Heat Transfer Correlations (76-WA/HT-42) **HT 36**
Cackette, T. The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) **P 640**
Cage Motion
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) **L 395**
Calcium Oxide
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) **P 520**
Calcium Superoxide
The Preparation of Calcium Superoxide at Subambient Temperatures and Pressures (77-ENAS-55) **I 26**
Calibration
The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (D) **F 15**; (AC) **F 16**; **F 10**

A Design Method on Propeller Current Meters (75-WA/FM-5) **F 83**

Calibration Curves
Effect of Flow Direction on Calibration of Hot-Film Anemometers at Low Velocities (TN) **HT 381**

Calvert, W. J. A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) **P 698**

Cam Design
A Computer-Aided Feel Cam Design (TB) **MD 604**

Cameron, A. Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (D) **L 416**; (AC) **L 417**

Canine Hearts
Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**

Canine Lungs
Canine Pulmonary Input Impedance Measured by Transient Forced Oscillations **BE 67**

Cannon, J. R. Determination of Unknown Coefficients in Parabolic Operators from Overspecified Initial-Boundary Data **HT 503**

Cantilever Beams
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 1 Analysis (77-DET-52) **MD 382**
An Experimental Study of First-Passage Failure of a Randomly Excited Structure (78-WA/APM-14) **AM 917**
Nonlinear Material Damping for Nonsinusoidal Strain **AM 883**

Cantilever Plates
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) **MD 374**
Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) **MD 528**

Cantilevered Beam-Plate
Experimental and Theoretical Study on Magnetoelastic Buckling of a Ferromagnetic Cantilevered Beam-Plate **AM 355**

Cantilevered Housing
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) **MD 696**

Cantilevered Tube Bundles
Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) **MD 540**

Cantilevers
Effect of Strain Hardening on the Large Plastic Deformation of a Cantilever (BN) **AM 953**
Vibration Frequencies for a Uniform Cantilever With a Rotational Constraint at a Point (DDM) **AM 422**

Capillaries
Red Cell Motion and Deformation in the Microcirculation **BE 139**

Carbide Hob
A Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) **MD 470**

Carbide Tools
Analytical Prediction of Three Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) **I 236**
Chipping and Breakage of Carbide Tools **I 403**

Carbon
Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) **MT 338**

Carbon Dioxide
Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) **BE 1**
Shock Tube Measurements of Carbon Dioxide in the 2.7 Micron Region (Er) **HT 683**
A Theoretical Analysis of CO_2 Absorption in Sun Versus Shade Leaves **BE 20**
Theoretical Determination of Band Absorption for Nonrigid Rotation with Applications to CO, NO, N_2O, and CO_2 **HT 230**

Carbon Dioxide Absorber
Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAs-54) **I 383**

Carbon Monoxide
Development of a Hybrid Catalytic Combustor **P 267**
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) **P 520**
The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) **P 640**
Theoretical Determination of Band Absorption for Nonrigid Rotation with Applications to CO, NO, N_2O, and CO_2 **HT 230**

Carbontetrachloride
The Conflicting Roles of Carbontetrachloride as a Boundary Lubricant (77-WA/Prod-7) **I 244**

Cardiac Cycle
Left Ventricular Function: Correlation With Deformation of the Myocardium (77-WA/Bio-11) **BE 99**; (D) (AC) **BE 104**

Cardiac Muscle Fiber
Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**

Cardiovascular Dynamics
Simulation of Cardiovascular Dynamics With the All-Pneumatic Artificial Ventricle System as a Replacement of the Myocardial Function **BE 35**

Carey, G. F. A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (D) **F 250**; (AC) **F 252**

Carlson, D. E. *(reviewer)* An Introduction to Thermomechanics (BR) **AM 966**

Carper, H. J. Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) **L 121**

Carta, F. O. Experimentally Determined Stability Parameters of a Subsonic Cascade Oscillating Near Stall (77-GT-47) **P 111**

Cascade Geometries
Vibratory Forcing Functions Produced by Nonuniform Cascades (77-GT-57) **P 82**

Cascades
Boundary-Layer Development on an Axial-Flow Compressor Stator Blade (77-GT-11) **P 287**; (D) **P 292**; (AC) **P 293**
An Efficient Algorithm for Evaluating Arrays of Extended Surface **HT 288**
Experimentally Determined Stability Parameters of a Subsonic Cascade Oscillating Near Stall (77-GT-47) **P 111**
Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) **P 432**
A Method for Testing Cascades with Converging Sidewalls **P 457**
Torsional Flutter in Stalled Cascade **P 317**

Castelli, V. Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (D) (AC) **L 245**; Perturbation Solution of the 1-D Reynolds Equation With Slip Boundary Conditions **L 70**

Casting Processes
Shape of Two-Dimensional Solidification Interface During Directional Solidification by Continuous Casting **HT 3**

Catalytic Combustor
Development of a Hybrid Catalytic Combustor **P 267**

Catchpole, A. P. Torsional Vibrations of a Vehicle Drive Line (77-DET-24) **MD 644**

Catton, I. Heat Transfer and Shear Stress on a Heated Cone (BN) **AM 952**; Natural Convection Heat Transfer in Beds of Inductively Heated Particles **HT 78**; Thermal Instability of a Volumetrically-Heated Pool with Phase Change and a Free Upper Surface (TN) **HT 376**

Caughey, T. K. Finite-Element Methods for Nonlinear Elastodynamics Which Conserve Energy **AM 366**; *(reviewer)* Point Mapping Stability (BR) **AM 456**; *(reviewer)* Stabilität und Matrizen (in German) (BR) **AM 704**

Cauley, L. S. Calculation of Peak Yarn Tension During Ring-Spinning (77-Tex-6) **I 167**

Caulk, D. A. On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**

Caustics
The End-Values of Distributed Loads in Half Planes by Caustics **AM 313**
Experimental Solution of Flexed Plates by the Method of Caustics (Er) **AM 965**

Caveny, L. H. Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) **HT 531**

Cavitating Bluff Bodies
Constrained Flow Past Cavitating Bluff Bodies (D) **F 254**; (AC) **F 255**

Cavitating Hydrofoil
A Partially Cavitating Hydrofoil of Finite Span **F 353**

Cavitating Pumps
Experiments on the Dynamic Behavior of Cavitating Pumps **F 166**

Cavitating Water Jet
CAVIJET™ Augumented Deep-Hole Drilling Bits (77-Pet-54) **PVT 52**

Cavitation
Leading-Edge Correction for the Supercavitating Flat-Plate Hydrofoil (77-FE-21) **F 276**; (D) (AC) **F 280**

Cavitation Development
Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**

Cavities
Heat Transfer in a Cavity Packed with Fibrous Glass (TN) **HT 748**
Laminar Natural Convection Heat Transfer in a Horizontal Cavity with Different End Temperatures **HT 641**
Review--Self-Sustaining Oscillations of Flow Past Cavities **F 152**

Cell Motion
Red Cell Motion and Deformation in the Microcirculation **BE 139**

Celmiņš, A. Modified Governing Equations for Unsteady Compressible Flow in Ducts **AM 723**

Cemented Carbides
Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) **PVT 74**

Cements
Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) **PVT 34**

Central Burst Analysis
Concerning Analysis of Central Burst in Metal Forming (TB) **I 386**

Central Core
Finite Extension of an Elastic Strand With a Central Core (78-WA/APM-7) **AM 852**

Centrifugal Compressor Rotors
A Flow Model for Centrifugal Compressor Rotors (77-GT-62) **P 148**

Centrifugal Impeller Stalling
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) **P 592**; (D) **P 601-602**; (AC) **P 602**

Centrifugal Pump Impeller
Quasi Two-Dimensional Analysis of a Flow Through a Centrifugal Pump Impeller (D) (AC) **F 248**

Centrifugal Pumps
Influence of Volute Surface Roughness on the Performance of a Centrifugal Pump **F 473**
A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) (A) **F 395**

Ceramic Regenerator Cores
Aluminous Keatite—An Improved Rotary Ceramic Regenerator Core Material (77-GT-60) **P 36**

Ceramic Regenerators
Fracture Strength and Thermal Shock Resistance of Thick And Thin-Wall Magnesium-Aluminum-Silicate Ceramic Heat Regenerators (77-GT-98) **P 136**
Reliability and Durability of Ceramic Regenerators in a Gas Turbine (77-GT-59) **P 73**

Ceramic Rotor Blades
Progress on Ceramic Rotor Blade Development for Industrial Gas Turbines (77-GT-42) **P 58**

Ceramics
High Frequency Ultrasonic Evaluation of Ceramics for Gas Turbines **P 549**
Structural Designing With Ceramic Materials **P 260**

Ceranoglu, A. N. Determination of Transient Responses of a Thick-Walled Spherical Shell by the Ray Theory **AM 114**

Cernocky, E. P. Construction of Nonlinear Monotonic Functions With Selectable Intervals of Almost Constant or Linear Behavior (78-WA/APM-22) **AM 780**

Chai, S. Review of Wear Problems in the Computer Industry (77-Lub-4) **L 189**; (D) **L 195-197**; (AC) **L 198**

Chait, R. The Stress Controlled High Cycle Fatigue Response of a Metastable Beta Titanium Alloy as Influenced by Several Test Variables (TB) **MT 426**

Chakraborty, J. Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) **MD 732**

Chamber Pressures
The Preparation of Calcium Superoxide at Subambient Temperatures and Pressures (77-ENAs-55) **I 26**

Chan, K. H. Buckling of Short Cylinders Under Combined Loading **AM 574**

Chan, S. H. Multi-Dimensional Radiative Transfer in Non-gray Gases—General Formulation and the Bulk Radiative Exchange Approximation (77-HT-51) **HT 486**

Chao, T. C. A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) **F 395**

Chandrashekhara, K. Photoelastic Analysis of a Composite Prism Subjected to Partial Compression (BN) **AM 436**

Chang, K.-J. Angled Elliptic Notch Problem in Compression and Tension **AM 258**

Chang, M. C. Experiments and Universal Growth Relations for Vapor Bubbles With Microlayers **HT 41**

Chang, P. Y. Transient Response of a Rotor in Damped Bearings (77-DET-21) **MD 257**

Chang, S. S.-H. Motion of a Large Dusty Buoyant Thermal With a Vortex Ring (78-WA/APM-8) **AM 711**

Chang, T. Y. Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**

Chao, B. T. Predictive Capabilities of Series Solutions for Laminar Free Convection Boundary Layer Heat Transfer (TN) **HT 160**

Chao, C. C. *(reviewer)* Elastodynamics, Vol. II, Linear Theory (BR) **AM 229**

Chao, E. Y. Graphical Interpretation of the Solution to the Redundant Problem in Biomechanics **BE 159**

Charged Aerosol
Particle Deposition in a Charged Aerosol Flowing Through a Conducting Tube **F 449**

Charles, J. A. Thermographic Determination of Fatigue Damage **MT 200**

Charpy Impact
Assessment of Weld Heat-Affected Zones in a Reactor Vessel Material (78-Mat-14) **MT 267**

Charpy Specimens
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**

Charpy Values
A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) **MT 272**

Charpy V-Notch
Comparison of Dynamic Tear and Charpy V-Notch Impact Properties of Plate Steels **MT 204**
Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) **MT 338**
General Yielding of Charpy V-Notch and Precracked Charpy Specimens **MT 183**
A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**

Chato, J. C. Analytical Solutions to the Problem of Transient Heat Transfer in Living Tissue **BE 202**; Flow and Heat Transfer in Convectively Cooled Underground Electric Cable Systems: Part 1—Velocity Distributions and Pressure Drop Correlations (76-WA/HT-45) **HT 30**; Part 2—Temperature Distributions and Heat Transfer Correlations (76-WA/HT-42) **HT 36**

Chatter Control Systems
Analysis and Design of Machine Tool Chatter Control Systems Using the Regeneration Spectrum **DS 191**

Chatter Stability
Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) **I 323**

Chatter Vibrations
Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) **MD 92**

Chatterjee, S. N. Asymmetric Branching of Cracks (D) **AM 701**; (AC) **AM 702**

Chaturvedi, S. Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) **F 65**; Inviscid Rotational Flow Through Sprays (BN) **AM 934**

Chemical Attack Damage
Reliability and Durability of Ceramic Regenerators in a Gas Turbine (77-GT-59) **P 73**

Chemical Plant Piping
The New Edition of ANSI B31.3—Some Significant Changes **PVT 123**

Chen, C. F. Time-Dependent Double-Diffusive Instability in a Density-Stratified Fluid along a Heated Inclined Wall (78-HT-43) **HT 653**

Chen, C. S. Experimental Study of Dispersive Waves in Beam and Rod Using FFT (BN) **AM 940**

Chen, E. P. Sudden Appearance of a Crack in a Stretched Finite Strip **AM 277**

Chen, Halu-H. A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) **P 511**

Chen, J. L. S. Forced Convection Heat Transfer from Nonisothermal Thin Needles **HT 358**

Chen, K.-K. On the Roughness Effect in Hydrodynamic Lubrication (D) (AC) **L 180**

Chen, P. J. On the Behavior of Acceleration Waves in Elastic Dielectrics With Internal State Variables **AM 745**; One Dimensional, Linear Dynamic Electromechanical Responses of Ferroelectric Ceramics **AM 749**

Chen, S. S. Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) **MD 540**

Chen, T. S. Mixed Convection about a Sphere with Uniform Surface Heat Flux (TN) **HT 542**

Chen, W. F. *(reviewer)* Applications of the Theory of Plasticity in Soil Mechanics (BR) **AM 705**

Chen, Y. N. Modal Method for Free Vibraton of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**

Cheney, M. C., Jr. An Experimental Study of Three-Dimensional Characteristics of Propeller Wakes Under Stalling Conditions (D) **F 141**; (AC) **F 142**

Cheng, H. S. An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) **L 12**

Cheng, K. C. An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition from Laminar Forced Convection to Turbulent Free Convection over a Horizontal Isothermally Heated Plate **HT 429**; Experiments on the Onset Longitudinal Vortices in Horizontal Blasius Flow Heated from Below **HT 71**

Cheng, L. C. Transient Analysis of a Permeable Thermal Barrier System (77-DE-24) **MD 127**

Cheng, S. *(reviewer)* Theory and Practice of Solid Mechanics (BR) **AM 229**

Cheng, S. C. Measurements of Transition Boiling Data for Water Under Forced Convective Conditions (TN) **HR 382**

Cheng, Y. F. Stress-Concentration Factors for a Countersunk Hole in a Flat Bar in Tension and Transverse Bending (ODM) **AM 929**

Cherchas, D. B. A Control Algorithm For Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**

Cheung, F. B. Correlation Equations for Turbulent Thermal Convection in a Horizontal Fluid Layer Heated Internally and from Below **HT 416**

Chia, C. Y. A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**

Chiang, C. C. Analysis of Vertically Mounted Through-Tube Heat Exchangers (D) (AC) **P 389**

Childs, D. W. Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) **MD 251**; The Space Shuttle Main Engine High-Pressure Fuel Turbopump Rotordynamic Instability Problem (77-GT-49) **P 48**

Chiou, J. P. wthe Effect of Longitudinal Heat Conduction on Crossflow Heat Exchanger **HT 346**; Thermal Performance Deterioration in Crossflow Heat Exchanger due to the Flow Nonuniformity **HT 580**

Chip Formation
Analytical Prediction of Three Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) **I 222**; Part 2: Chip Formation and Cutting Force With Conventional Single-Point Tool (77-WA/Prod-10) **I 229**; Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) **I 236**
On a New Model of Oblique Cutting (77-WA/Prod-6) **I 287**
Orthogonal Machining of Bone **BE 122**

Chipping
Chipping and Breakage of Carbide Tools **I 403**

Chiu, S. T. Fatigue Crack Growth of Bondline Cracks in Structural Bonded Joints **MT 39**

Chiu, Y. P. Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) **L 156**; (D) (AC) **L 165**; On the Stress Field and Surface Deformation in a Half Space With a Cuboidal Zone in which Initial Strains Are Uniform **AM 302**

Chivers, T. C. Gas Flow Through Cracks **F 453**

Chockie, L. J. Rules for Inservice Inspection for Nuclear Power Plant Components **PVT 313**

Choke Condition
A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) **P 698**

Chorin, A. *(reviewer)* Navier Stokes Equations: Theory and Numerical Analysis (BR) **AM 456**

Chou, Y. T. On Rigid Elliptic Inclusions in Orthotropic Solids (BN) **AM 683**

Chow, P. L. On the Roughness Effect in Hydrodynamic Lubrication **L 176**; (D) (AC) **L 180**

Chow, W. W. Deformations and Stresses in Soft Body Tissues of a Sitting Person **BE 79**

Chrostowski, J. D. Model Verification of Mixed Dynamic Systems (77-DET-85) **MD 266**

Chu, C. L. DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**

Chu, C. S. Growth Characteristics of a Fatigue Crack Approaching and Growing Beneath an Adhesively Bonded Doubler (77-WA/Mat-14) **MT 52**

Chu, K. H. Theoretical Determination of Band Absorption for Nonrigid Rotation with Applications to CO, NO, N_2O, and CO_2 **HT 230**

Chung, B. T. F. The Heat Balance Integral in Steady-State Conduction (D) (AC) **HT 581**; A Surface Rejuvenation Model for Turbulent Heat Transfer in Annular Flow With High Prandtl Numbers **HT 92**

Chung, J. S. A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) **PVT 91**

Chung, T. J. *(author)* Finite Element in Fluid Dynamics (BR) **DS 347**

Chung, Y. I. Stability of a Vehicle on a Multispan Simply Supported Guideway **DS 326**

Ciarlet, P. G. *(author)* The Finite Element Method for Elliptic Problems (BR) **AM 958**

Circular Arc Profiles
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 1 Analysis (77-DET-52) **MD 382**; Part 2: Experimental Investigation (77-DET-52) **MD 395**; (D) (AC) **MD 404**

Circular Arches
Optimal Shape of Shallow Circular Arches Against Snap-Buckling **AM 591**

Circular Area
Annular Dome Subjected to Uniform Load Over an Eccentric Circular Area **AM 845**

Circular Centered Orbits
Investigation of Squeeze Film Damper Forces Produced by Circular Centered Orbits (77-GT-30) **P 15**

Circular Cylinders
On the Flexural Rigidity of a Micropolar Elastic Circular Cylinder (BN) **AM 429**
A Three-Dimensional Treatment of Transient Thermal Stresses in a Circular Cylinder Due to an Arbitrary Heat Supply **AM 817**
Vibration of a Group of Circular Cylinders in a Confined Fluid (D) (AC) **AM 455**

Circular Ducts
A Correlation for Laminar Hydrodynamic Entry Length Solutions for Circular and Noncircular Ducts **F 177**

Circular Free Jet
Solutions of Laminar Jet Flow Problems for Non-Newtonian Power-Law Fluids **F 363**

Circular Holes
On the Dynamic Expansion of a Circular Hole in an Infinite Plate of Rate-Sensitive Plastic Material **AM 67**
The Dynamic Hole Expansion Problem for a Plate of Elastic-Perfectly Plastic Material (BN) **AM 961**
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) **P 356**
Reduction of Stress Concentration Due to Interference Fits in an Infinite Plate With Two Holes **PVT 369**

Circular Liquid Jets
Liquid Jet Impingement Normal to a Disk in Zero Gravity (78-WA/FE-1) **F 204**

Circular Magnetic Fields
Sufficient Conditions for Stability of Rotating Flows **AM 7**

Circular Orifice
Mixing Process Induced by the Vorticity Associated with the Penetration of a Jet into a Cross Flow **P 465**

Circular Plates
Dynamic Response of Circular Plates Resting on Viscoelastic Half Space **AM 379**
Experimental Study on the Effect of Orientation of Heating Circular Plate on Film Boiling Heat Transfer for Fluorocarbon Refrigerant R-11 **HT 624**
Wide-Band Random Vibration of Circular Plates (77-DET-97) **MD 690**
Response of a Rigid-Plastic Circular Plate in Contact With Newtonian Fluid (BN) **AM 199**
Vibration Analysis of Circular Plates With Eccentric Hole (BN) **AM 215**

Circular Rigid Tube
Approximate Solution for Pulsatile Laminar Flow in a Cir-

cular Rigid Tube (TB) **F 131**

Circular Scraping
Stokes Flow Due to Circular Scraping (BN) **AM 956**

Circular Shafts
Stress-Strain Analysis of Cyclic Plastic Bending and Torsion **MT 157**

Circular Whirl Orbits
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) **MD 549**

Circumferential Wall Heat Conduction
Effect of Circumferential Wall Heat Conduction on Boundary Conditions for Heat Transfer in a Circular Tube (TN) **HT 537**

Circumferential Wave Numbers
Modal Method for Free Vibration of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**

Circumferentially Nonuniform Heating
Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**
Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**

Cizek, J. C. Reflection of Acceleration Waves in an Elastic-Plastic Medium **AM 51**

Clamped Composite-Material Plates
Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-88) **MD 274**

Clamped Ends
Modal Method for Free Vibration of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**

Clamped Laminates
A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**

Clamped Rectangular Plates
On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) **MD 703**
Eigenfunction Solutions for the Flexure of Clamped Rectangular Plates Lying on an Elastic Foundation (BN) **AM 211**
Strain Energy Minimization Leading to Timoshenko's Clamped Rectangular Plate Solution (BN) **AM 948**

Clark, R. E. Vortex Motion and Induced Pressures in a Model of the Aortic Valve **BE 216**

Clearance Effects
Control of Clearance Effects in Mechanisms (77-WA/DE-2) **MD 728**

Cleary, M. P. Fracture Discontinuities and Structural Analysis in Resource Recovery Endeavors (77-Pet-32) **PVT 2**

Cleveland, J. J. Fracture Strength and Thermal Shock Resistance of Thick And Thin-Wall Magnesium-Aluminum-Silicate Ceramic Heat Regenerators (77-GT-98) **P 136**

Clomburg, L. A., Jr. Convection in an Enclosure-Source and Sink Located Along a Single Horizontal Boundary **HT 205**

Close-Packed Metals
Experiments on Strain Rate History and Temperature Effects During the Plastic Deformation of Close-Packed Metals **AM 60**

Closed Form Solutions
Closed Form Solutions for Certain Heat Conduction Problems (TN) **HT 558**

Closed Loop System
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) **DS 50**

Closure Analysis
Analysis of Closure in Fatigue Crack Growth **AM 267**

Closure Technique
Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique **AM 393**

Closures
Boundary Layer Closure and Heat Transfer in Constant Base Pressure and Simple Wave Guns **HT 680**

Cluster Stability
Stability of a Cluster of Flexible Cylinders in Bounded Axial Flow (AC) **AM 703**

Clutch Assemblies
Sprag Overriding Aircraft Clutch (GR) **MD 205**

Coal
An Assessment of Overburden Stability in the In-Situ Gasification of Texas Lignite **PVT 285**
Performance and Economics of Advanced Energy Conversion Systems for Coal and Coal-Derived Fuels **P 252**

Coal Dust-Air Mixtures
A Model for Flame Propagation in Low Volatile Coal Dust-Air Mixtures (77-HT-18) **HT 105**

Coal Fired Boilers
Prediction of Temperature Profiles in Fluid Bed Boilers (76-HT-66) **HT 508**

Coal-Fired Plants
Considerations When Converting Industrial Plants to Coal Firing (77-IPC-Fu-1) **P 374**

Coal Gas
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) **P 520**

Coating Alloys
Centrifugally Cast Metallurgical Coatings for Wear Resistance in Plastics Molding Machines **L 423**

Coatings Measurement
Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/Sol-1) **P 489**

Cobalt-Base Alloys
Effect of Structure on Wear Resistance of Co-, Fe-, and Ni-Base Alloys **L 428**

Code Rules Updated
The New Edition of ANSI B31.3—Some Significant Changes **PVT 123**

Coffin, L. F. Fatigue Design Criterion for Pressure Vessel Alloys (D) **PVT 236**

Cohn, A. Progress on Ceramic Rotor Blade Development for Industrial Gas Turbines (77-GT-42) **P 58**

Coils
Determination of Void Fraction, Incipient Point of Boiling, and Initial Point of Net Vapor Generation in Sodium-Heated Helically Coiled Steam Generator Tubes **HT 268**

Cold Flow
Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**

Cold-Rolled Brass
Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/Prod-29) **I 217**

Cold Rolling
Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) **I 186**

Cold Surfaces
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) **P 439**

Coles, W. F. Considerations When Converting Industrial Plants to Coal Firing (77-IPC-Fu-1) **P 374**

Coldworked Fastener Holes
Measurement of the Elastic-Plastic Boundary Around Coldworked Fastener Holes (78-WA/APM-2) **AM 515**
Residual Strains Around Coldworked Fastener Holes **MT 310**

Collagen Fibril Ultrastructure
The Biomechanical Function of the Collagen Fibril Ultrastructure of Articular Cartilage **BE 105**

Collapse Pressure
Plastic Collapse of Oval Straight Tubes Under External Pressure (77-PVP-57) **PVT 46**

Collimated Radiation
Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) **HT 665**
Two-Dimensional Multiple Scattering Comparison of Theory with Experiment (77-HT-48) **HT 480**

Collins, R. L. Choked Expansion of Subcooled Water and the I.H.E. Flow Model **HT 275**

Collocation Solution
Collocation Solution for Point-Supported Square Plates (BN) **AM 424**

Column Buckling Load Problem
Equivalence of Constrained Minimum Weight and Maximum Column Buckling Load Problem With Solution **AM 159**

Column Oscillation
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**

Combined Cycles
Steam Bottoming Plants for Combined Cycles **P 203**

Combined Loading
Buckling of Short Cylinders Under Combined Loading **AM 574**

Combined Loads
Fracture Under Combined Loads by Maximum-Energy-Release-Rate Criterion **AM 553**

Combing
Combining of Opening Room Blends of Cotton and Polyester (77-TEX-5) **I 21**

Combustion
An Assessment of Overburden Stability in the In-Situ Gasification of Texas Lignite **PVT 285**
Development of a Hybrid Catalytic Combustor **P 267**
Fuel Spray Trajectory in Diesel Engines (77-DGP-1) **P 326**
Low NOx Combustion of Paraho Shale Oil in a 45 MW Utility Boiler (77-WA/Fu-1) **P 383**
Simultaneous Measurements of Velocity and Temperature in Nonisothermal Flows **HT 340**

Combustion Process
A Model for Flame Propagation in Low Volatile Coal Dust-Air Mixtures (77-HT-18) **HT 105**

Combustion Systems
Infrared Mean Absorption Coefficients of Luminous Flames and Smoke **HT 235**
Radiation From a Methanol Furnace (77-HT-14) **HT 247**

Combustors
Design and Development of a High-Pressure Combustor for Aero-Gas-Turbines (77-GT-96) **P 129**
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) **P 444**
The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) **P 630**
The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) **P 640**

Comfort, W. J., III Calculation of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (76-WA/FE-31) **F 355**

Comninou, M. Elastic Interface Waves and Sliding Between Two Solids **AM 325**; The Interface Crack in a Shear Field **AM 287**; Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**

Compact Cutter
Diamond Compact Cutter Studies for Geothermal Bit Design **PVT 406**

Compact Specimens
Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**

Compact Tension Specimen
J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) **MT 248**

Comparative Measurements
Comparative Measurements of Different Electric Drives for an Experimental Motor Vehicle (GR) **MD 204**

Comparison Method
Performance Ranking of Plate-Fin Heat Exchanger Surfaces (76-WA/HT-31) **HT 514**

Compensators
Optimum Design of Control System Compensators **DS 140**

Complementary Energy Principle
Finite Elasticity Solutions Using Hybrid Finite Elements Based on a Complementary Energy Principle (78-WA/APM-1) **AM 539**

Complex Loading
Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) **MT 25**

Complex Mechanisms
Model Formulation of Complex Mechanisms With Multiple Inputs Part 1—Geometry (77-WA/DE-9) **MD 747**; Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) (AC) **MD 761**

Complex Piping Systems
Rational and Economical Multicomponent Seismic Design of Piping Systems (TB) **PVT 425**

Complex Structures
Fatigue Life Prediction of Complex Structures (77-DE-46) **MD 2**

Component Damage
A New Cumulative Damage Model: Part I **AM 248**

Component Element Method
The Component Element Method in Dynamics (BR) **AM 235**

Component Strength
Mechanical Reliability Confidence Limits (77-DE/WA-12) **MD 607**; (D) (AC) **MD 613**

Composite Materials
Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-88) **MD 274**
Fracture Mechanics of Composite Materials **MT 233**
The Influence of Material Variability on the Predicted Environmental Behavior of Composite Materials (77-WA/Mat-9) **MT 77**
Low Frequency Bloch Waves for Wave Equations Whose Speed Is a Deterministic, or Randomlike, Periodic

Function **AM 331**

Composite Plates
Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) **P 380**; (D) (AC) **P 389**
A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**

Composite Prism
Photoelastic Analysis of a Composite Prism Subjected to Partial Compression (BN) **AM 436**

Composites
Dynamically Induced Interfacial Stresses in Fibrous Composites (BN) **AM 442**
Harmonic Waves in Layered Composites: New Bounds on Eigenfrequencies (78-WA/APM-23) **AM 829**
A Mixture Theory for Quasi-One-Dimensional Diffusion in Fiber-Reinforced Composites **HT 128**
Simulation of the Influence of Bonding Materials on the Dynamic Behavior of Laminated Composites (78-WA/APM-15) **AM 822**

Compound Parabolic Concentrators
Natural Convection In Compound Parabolic Concentrators—A Finite-Element Solution **HT 199**

Compressible Flow
Exact and Approximate Equations for Real-Fluid Isentropic Flow **F 413**

Compressible Mixtures
Consolidation in Compressible Mixtures **AM 727**

Compression
Angled Elliptic Notch Problem in Compression and Tension **AM 258**
Combined Mode Fracture Toughness Measurement by the Disk Test **MT 175**
Heat Transfer During Piston Compression **HT 527**
Photoelastic Analysis of a Composite Prism Subjected to Partial Compression (BN) **AM 436**
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) **P 576**

Compression Strength
Further Developments in Anisotropic Plasticity **MT 294**

Compression System Components
Flow Field Coupling Between Compression System Components in Asymmetric Flow (77-GT-17) **P 66**

Compressive Strength
Contrasting Fracture Models For Granite Under Dynamic Loading **MT 287**

Compressive Stress
Stresses in Ruptured Floating Roofs **PVT 291**

Compressive Wave
Quasi-Bifurcation of Rods Within an Axial Plastic Compressive Wave **AM 100**

Compressor Blades
Boundary-Layer Development on an Axial-Flow Compressor Stator Blade (77-GT-11) **P 287**; (D) **P 292**; (AC) **P 293**

Compressor Cascades
The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Flow in Compressor Cascades (77-WA/FE-5) **F 22**

Compressor Exit Flow Distribution
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) **P 444**

Compressor Performance Prediction
A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) **P 698**
Prediction of Compressor Performance in Rotating Stall (77-GT-10) **P 1**; (D) **P 13**; (AC) **P 14**

Compressor Stator
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) **P 664**; (D) (AC) **P 675**

Compressor Systems
First-Order Pump Surge Behavior (77-WA/FE-12) **F 459**

Compressors
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) **MD 599**
Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**
A Gas Path Performance Diagnostic System to Reduce J75-17 Engine Overhaul Costs (78-GT-116) **P 691**; (D) (AC) **P 697**
Interaction of the Rotor Blade Shock Waves in Supersonic Compressors With Upstream Stator Vanes (77-GT-93) **P 140**
A Method of Calculating the Slip Factor of Centrifugal Compressors From Deviation Angle (77-GT-64) **P 121**
Torsional Flutter in Stalled Cascade **P 317**

Computation Techniques
Power System Economics: On Selection of Engineering Alternatives (77-JPGC-Pwr-7) **P 333**; (D) **P 343**; (AC) **P 346**

Computational Algorithm
Machine Loading and Product-Mix Analysis for Group Technology (77-WA/Prod-21) **I 370**
Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) **MD 311**

Computational Energy
Fracture Discontinuities and Structural Analysis in Resource Recovery Endeavors (77-Pet-32) **PVT 2**

Computational Methods
An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) **MD 222**
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**
Model Verification of Mixed Dynamic Systems (77-DET-85) **MD 266**

Computational Procedures
Noninvasive Inference of Airway Network Geometry From Broadband Lung Reflection Data **BE 131**
Axisymmetric Bending of Annular Plates (78-WA/APM-27) **AM 834**
Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 1: Implementation **AM 595**; Part 2: Error Propagation **AM 603**
A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages **F 180**

Computational Programs
Model Formulation of Complex Mechanisms With Multiple Inputs: Part 1—Geometry (77-WA/DE-9) **MD 747**

Computational Schemes
A Novel Physico-Computational Model for Quasi One-Dimensional Gas-Particle Flows (76-WA/FE-36) **F 343**

Computer-Aided Analysis
Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) **I 159**

Computer-Aided Design
Computer Aided Design For Manufacturing-Mechanical: A Bibliography With Abstracts (GR) **MD 203**
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) **MD 599**
A Computer-Aided Feel Cam Design (TB) **MD 604**

Computer-Aided Manufacturing
The Optimal Machine Tool Control Problem **DS 170**

Computer Algorithms
Dynamics of Multirigid-Body Systems (78-WA/APM-10) **AM 889**

Computer Analysis
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 1 Analysis (77-DET-52) **MD 382**

Computer Implementation Aspect
Implicit-Explicit Finite Elements in Transient Analysis: Implementation and Numerical Examples **AM 375**

Computer Model
Graphical Output-Oriented Computer Model of a Railroad Freight Car With Conventional Trucks (77-RT-11) **I 67**

Computer Optimization Procedure
A Strategy for the Optimum Design of Acoustic Space (77-DET-44) **MD 411**

Computer Programs
A Control Algorithm For Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**
Elastic and Elastic-Plastic Buckling of Internally Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) **PVT 335**
Finite-Element Methods for Nonlinear Elastodynamics Which Conserve Energy **AM 366**
A General Theory for Synthesizing Crank-Type Four-Bar Function Generators With Transmission Angle Control **AM 415**
A Realistic Solution of the Symmetric Top Problem (78-WA/APM-20) **AM 903**
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) **MD 696**

Computer Simulation
Analytical Prediction of Three Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) **I 236**
Effects of Jerk Limiting on the Stability of Automated Transit Vehicles **DS 298**
A Parametric Study to Relate Speed to Permissible Combinations of Track Geometry Deviations **DS 252**
Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) **MD 26**

Computerized Adaptive Control
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) **I 318**

Computerized Selection
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/Prod-4) **I 356**

Computers
Analysis of Leg Loading in Snow Skiing **DS 177**
An Evaluation of Mean Reynolds Stress Turbulence Models: The Triple Velocity Correlation **F 47**
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) **P 691**; (D) (AC) **P 697**
A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**
Review of Wear Problems in the Computer Industry (77-Lub-4) **L 189**; (D) **L 195-197**; (AC) **L 198**
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/Prod-19) **I 303**; (D) **I 309**; (AC) **I 310**

Concannon, B. T. Energy Requirements of the Rail Mode (78-RT-1) **I 475**

Concentrated Mass
The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity **AM 643**

Concentric Cylindrical Vessels
Normal Mode Solution of Fluid-Coupled Concentric Cylindrical Vessels (78-PVP-37) **PVT 350**

Concentric Cylinders
Stress-Induced Radial Pressure Gradients in Liquid-Filled Multiple Concentric Cylinders (D) **AM 228**

Concentric Rotating Cylinders
The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow **F 210**
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) **L 261**; (D) **L 269**; (AC) **L 270**

Concentric Spheres
Frictional Moment of Flow Between Two Concentric Spheres, One of Which Rotates **F 97**; (D) **F 266**; (AC) **F 247**

Concentric Spherical Viscometers
Heat Transfer in the Biconical and Concentric Spherical Viscometers (TN) **HT 750**

Concentricity
An Experimental Study of Natural Convection Heat Transfer in Concentric and Eccentric Horizontal Cylindrical Annuli **HT 635**

Concrete Reactor Vessel
Transient Analysis of a Permeable Thermal Barrier System (77-DE-24) **MD 127**

Condensation
Augmentation of Horizontal In-Tube Condensation by Means of Twisted-Tape Inserts and Internally Finned Tubes **HT 17**

Condensation Cycles
The Use of Liquid Natural Gas as Heat Sink for Power Cycles (77-GT-19) **P 169**

Condenser Standards
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) **P 363**

Condenser Support Plate
Load-Deformation Behavior of Elastic Beam-Columns of Yielding Foundations **P 182**

Conducting Tube
Particle Deposition in a Charged Aerosol Flowing Through a Conducting Tube **F 449**

Conduction
Stresses in a Solidifying Semitransparent Cylindrical Medium by Conduction and Radiation (BN) **AM 946**
Transient Conduction in a Slab With Temperature Dependent Thermal Conductivity (TN) **HT 172**

Conduction-Radiation Heat Transfer
Combined Conduction-Radiation Heat Transfer Through an Irradiated Semi-transparent Plate (TN) **HT 169**

Conductive Fluids
Sufficient Conditions for Stability of Rotating Flows **AM 7**

Conductive Heat Transfer
Combined Conductive and Radiative Heat Transfer in an Absorbing and Scattering Infinite Slab (77-HT-50) **HT 98**

Conductivity
Analysis of the Effects of Finite Conductivity in the Single Blow Heat Storage Unit (TN) **HT 740**
A Perturbation Method for Studying Heat Conduction in Solid With Random Conductivity (BN) **AM 933**
Thermal Properties of Tungsten SRM'S 730 and 799 **HT 330**
Cone-Cylinder Shell Junction
Boundary Conditions at a Cone-Cylinder Shell Junction (BN) **AM 938**
Cones
Heat Transfer and Shear Stress on a Heated Cone (BN) **AM 952**
Coney, J. E. R. The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow **F 210**
Congestive Cardiomyopathy
Left Ventricular Function: Correlation With Deformation of the Myocardium (77-WA/Bio-11) **BE 99**; (D) (AC) **BE 104**
Conical Bearing Surfaces
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) **I 273**
Conical Closures
Geometry of Scalloped Closures for Cylindrical Vessels (TB) **PVT 310**
Conical Reamer
The RAPIDEX Conical Reamer (77-Pet-31) **PVT 60**
Conn, A. F. CAVIJET™ Augmented Deep-Hole Drilling Bits (77-Pet-54) **PVT 52**
Connors, H. J., Jr. Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) **MD 347**
Conry, T. F. A Method for Optimal Tolerance Selection (D) (AC) **I 390**; On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) **L 296**; (D) **L 302**; (AC) **L 303**
Consigny, H. Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) **P 439**
Constant Base Pressure
Boundary Layer Closure and Heat Transfer in Constant Base Pressure and Simple Wave Guns **HT 690**
Constant Behavior
Construction of Nonlinear Monotonic Functions With Selectable Intervals of Almost Constant or Linear Behavior (78-WA/APM-22) **AM 780**
Constitutive Assumptions
On the Behavior of Acceleration Waves in Elastic Dielectrics With Internal State Variables **AM 745**
Constitutive Equations
High Temperature Properties and Constitutive Equations for 1 Cr-½ Mo Steel (77-PVP-50) **PVT 246**
Viscoplastic Constitutive Equations for Copper With Strain Rate History and Temperature Effects **MT 388**
Viskoelastizität und Plastizität. Thermomechanisch Konsistente Materialgleichungen (Viscoelasticity and Plasticity. Thermomechanically Consistent Constitutive Equations) (BR) **AM 457**
Constitutive Formulation
An Analysis of High Temperature Metal Creep Part II: A Constitutive Formulation and Verification **MT 371**
Constitutive Relations
Nonlinear Constitutive Relations for Human Brain Tissue **BE 44**
One Dimensional, Linear Dynamic Electromechanical Responses of Ferroelectric Ceramics **AM 749**
Constitutive Theory
An Analysis of High Temperature Metal Creep Part I: Experimental Definition of an Alloy **MT 363**
Constrained Flow
Constrained Flow Past Cavitating Bluff Bodies (D) **F 254**; (AC) **F 255**
Constrained Minimum Weight
Equivalence of a Constrained Minimum Weight and Maximum Column Buckling Load Problem With Solution **AM 159**
Constrained Nonlinear Problems
A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) **MD 292**
Constricted Tubes
Analytical Solutions of Viscous Flow in Constricted or Widened Tubes **AM 241**
Contact Bearings
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) **L 395**
Contact Line
A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) **MD 451**
Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) **MD 460**
Contact Lines Envelope
An Analysis of Undercut Conditions and of Appearance of Contact Lines Envelope Conditions of Gears (77-DET-2) **MD 423**
Contact Loss
Control of Clearance Effects in Mechanisms (77-WA/DE-2) **MD 728**
Contact Pattern
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) **MD 77**
Contact Planes
Nonlinear Kinematics of Wheel-Rail Contact **AM 665**
Contact Points
Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear **L 492**; (D) (AC) **L 499**
Contact Problem
On the Contact Problem of a Highly Inflated Spherical Nonlinear Membrane (BN) **AM 202**
Contact Ratios
Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) **MD 69**
Contact Surfaces
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) **MD 440**
Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) **L 156**; (D) (AC) **L 165**
Contact Temperature
Asperity Interactions in EHD Contacts (77-Lub-19) **L 245**; (D) **L 252**; (AC) **L 253**
Contact Zones
The Interface Crack in a Shear Field **AM 287**
Contacting Surface
The End-Value of Distributed Loads in Half Planes by Caustics **AM 313**
Contactor Support System
Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) **MD 242**
Continuous Casting
Shape of Two-Dimensional Solidification Interface During Directional Solidification by Continuous Casting **HT 3**
Continuous Elastic Structures
Transient Response of Continuous Elastic Structures With Viscous Damping (78-WA/APM-5) **AM 877**
Continuous Extrusion Process
Theory of Linear Continuous Extrusion—Linex (77-WA/Prod-17) **I 37**
Continuous Gradient Functions
The Generation of Continuous Gradient Functions (TB) **DS 152**
Continuous Systems
Simulation of Continuous Systems by Periodic Structures **AM 385**
Continuously Supported Beam
The Coupled Response of a Dynamic Element Riding on a Continuously Supported Beam **AM 864**
Continuum Mechanics
A First Course in Continuum Mechanics (BR) **AM 969**
Control Algorithm
A Control Algorithm For Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**
Control Application
On The Application Of Modern Control to Power Plants (D) (AC) **DS 94**
Control Elements
A Brief History of Electrohydraulic Servomechanisms **DS 110**
Control Logic
Development of Gas Turbine Performance Seeking Logic (78-GT-13) **P 571**; (D) (AC) **P 575**
Control Methods
Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) **MD 173**
Control System Compensators
Optimum Design of Control System Compensators **DS 140**
Control System Design
The Optimal Machine Tool Control Problem **DS 170**
The Use of Sensitivity Functions to Match Matrix Transfer Functions to Time-Domain Performance Criteria **DS 187**
Control Systems
Analysis and Design of Machine Tool Chatter Control Systems Using the Regeneration Spectrum **DS 191**
Carathéodory Controllability Criterion for Nonlinear Dynamical Systems **DS 209**
Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) **I 323**
Longitudinal Control of Automated Guideway Transit Vehicles Within Platoons **DS 302**
Optimal Control of On-Board and Station Flywheel Storage for Rail Transit Systems **DS 284**
Quasi-Time-Optimal Feedback Control of Some Fifth-Order Systems **DS 201**
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/Prod-19) **I 303**; (D) **I 309**; (AC) **I 310**
Control Theory
Flank Wear Model of Cutting Tools Using Control Theory (77-WA/Prod-20) **I 183**
Controller Synthesis
Developments in Nonlinear Controller Synthesis: An Overview **DS 59**
Convection
A Bond Graph Modeling Philosophy for Thermofluid Systems **DS 70**
Convection in an Enclosure-Source and Sink Located Along a Single Horizontal Boundary **HT 205**
Convection in a Porous Medium Heated from Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient 77-HT-56) **HT 448**
Correlation Equations for Turbulent Thermal Convection in a Horizontal Fluid Layer Heated Internally and from Below **HT 416**
Development of Wall and Free Plumes Above a Heated Vertical Plate **HT 184**
Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**; (Er) **HT 367**
An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition from Laminar Forced Convection to Turbulent Free Convection over a Horizontal Isothermally Heated Plate **HT 429**
Experiments on the Role of Natural Convection in the Melting of Solids **HT 11**
Forced Convection Heat Transfer from Nonisothermal Thin Needles **HT 358**
Forced Convection Heat Transfer from a Shrouded Fin Array with and without Tip Clearance **HT 572**
Free Convection Effects on Stokes' Problem for a Vertical Plate in Rarefied Gas-Medium (BN) **AM 697**
Free Convection across Inclined Air Layers with One Surface V-Corrugated **HT 410**
Free-Forced Convection in the Entry Region of a Heated Straight Pipe **HT 212**
Heat Transfer by Natural Convection Between a Vertical Surface and a Stably Stratified Fluid (TN) **HT 378**
Heat Transfer Phenomenology of a Hydrodynamically Unstable Melting System **HT 305**
Influence of System Pressure on Microlayer Evaporation Heat Transfer **HT 49**
Melting and Natural Convection Due to a Vertical Embedded Heater (TN) **HT 368**
Mixed Convection about a Sphere with Uniform Surface Heat Flux (TN) **HT 542**
Natural Convection in Compound Parabolic Concentrators—A Finite-Element Solution **HT 199**
Natural Convection Heat Transfer in Beds of Inductively Heated Particles **HT 78**
Natural Convection in a Horizontal Porous Medium Subjected to an End-to-End Temperature Difference **HT 191**
Partial Spectral Expansions for Problems in Thermal Convection **HT 435**
Predictive Capabilities of Series Solutions for Laminar Free Convection Boundary Layer Heat Transfer (TN) **HT 160**
Pseudo Bond Graphs for Thermal Energy Transport **DS 165**
Radial Heat Transfer and Critical Biot Number With Radiation, Uniform Surface Heat Generation, and Curvature Effects in Convection (TN) **HT 374**
Thermal Instability of a Volumetrically-Heated Pool With Phase Change and a Free Upper Surface (TN) **HT 376**
Transient Free Convection from a Suddenly Heated

Horizontal Wire **HT 423**
Variable Physical Properties in Laminar Heating of Pseudoplastic Fluids with Constant Wall Heat Flux **HT 220**

Convection Analysis
A Local Nonsimilarity Analysis of Free Convection From a Horizontal Cylindrical Surface (TN) **HT 165**

Convection Flow
Nonsimilar Laminar Free Convection Flow Along a Nonisothermal Vertical Plate (TN) **HT 163**

Convective Boundary Layers
Laminar Mixed-Mode, Forced and Free, Diffusion Flames **HT 253**

Convective Geothermal Systems
A Thermodynamic Study of Heating with Geothermal Energy (77-WA/Ener-1) **P 503**

Convective Heat Loss
Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) **BE 7**

Convective Heat Transfer
The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**
Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) **HT 352**
Heat Transfer in Turbulent Pipe Flow for Liquids Having a Temperature-Dependent Viscosity **HT 224**
Some Effects of Mechanically-Produced Unsteady Boundary Layer Flows on Convective Heat Transfer Augmentation **HT 25**
Thermal Response of Slabs Subjected to Non-Symmetric Convective Heat Transfer (78-DE-8) **MD 706**

Convective Heating
Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) **HT 531**

Conventional Truck Modifications
High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) **I 49**

Conventional Trucks
Graphical Output-Oriented Computer Model of a Railroad Freight Car With Conventional Trucks (77-RT-11) **I 67**

Convergence Rate
A Transformation Method With Two Parameters for Constrained Optimal Control Problems **DS 124**

Converging Sidewalls
A Method for Testing Cascades with Converging Sidewalls **P 457**

Convex Optimal Control
A Transformation Method With Two Parameters for Constrained Optimal Control Problems **DS 124**

Cooley, D. B. Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) **I 311**; (D) **I 318**; (AC) **I 317**

Cooling
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D) (AC) **P 591**
Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAs-54) **I 383**
Film Cooling of a Gas Turbine Blade **P 476**
Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) **HT 352**
Structural and Cooling Aspects of the Aden Nonaxisymmetric Exhaust Nozzle (77-GT-110) **P 308**
Therapeutic Effects of Postburn Cooling **BE 149**

Cooling Systems
Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) **F 65**
A Portable Personal Cooling System for Mine Rescue Operations (77-ENAs-53) **I 53**
Pseudo Bond Graphs for Thermal Energy Transport **DS 165**

Cooling Towers
An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**
Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**

Cooperrider, N. K. Optimization of Rail Vehicle Operating Speed With Practical Constraints (78-WA/DSC-28) **DS 260**; A Survey of Rail Vehicle Testing for Validation of Theoretical Dynamic Analysis **DS 238**

Coplanar Griffith Cracks
Dynamic Stress Concentration Around Two Coplanar Griffith Cracks in an Infinite Elastic Medium **AM 803**

Copper
An Investigation of the Minimum Film Boiling Temperature on Horizontal Surfaces **HT 260**
Viscoplastic Constitutive Equations for Copper With Strain Rate History and Temperature Effects **MT 388**

Core Failures
Aluminous Kaolite—An Improved Rotary Ceramic Regenerator Core Material (77-GT-60) **P 36**

Core Layers
Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) **MD 667**

Cormack, D. E. An Evaluation of Mean Reynolds Stress Turbulence Model: The Triple Velocity Correlation **F 47**

Corman, J. C. Performance and Economics of Advanced Energy Conversion Systems for Coal and Coal-Derived Fuels **P 252**

Cornell, R. W. Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) **MD 69**

Corner Cracks
Embedded Elliptical Crack at a Corner (78-PVP-5) **PVT 28**

Corner Reaction
A Note on the Reaction at Simply Supported Square Corners (BN) **AM 217**

Corner Separation Points
The Viscous Sublayer in a Streamwise Corner (BN) **AM 219**

Corotating Disks
Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**

Correction Factors
The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) **P 640**

Correlation Equations
Correlation Equations for Turbulent Thermal Convection in a Horizontal Fluid Layer Heated Internally and from Below **HT 416**

Correlation Method
A method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) **F 395**

Corresponding States Correlations
Corresponding States Correlations of the Extreme Liquid Superheat and Vapor Subcooling (77-HT-20) **HT 492**

Corrosion
Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) **P 704**
Pressure Tubes: The Pressure Vessels in the CANDU Nuclear Power Reactor (IPT) **PVT 328**

Corrosion Resistant Steel
Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) **L 226**; (D) **L 232, 233**; (AC) **L 234**

Corrugated Plates
Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**

Cotton Fabrics
Combining of Opening Room Blends of Cotton and Polyester (77-Tex-5) **I 21**

Cotton Fiber Beards
A New Hooked Needle Device For Forming Fiber Beards For Length and Strength Measurement (77-Tex-2) **I 5**

Cotton Yarn
The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-TEX-4) **I 13**

Countersunk Holes
Stress-Concentration Factors for a Countersunk Hole in a Flat Bar in Tension and Transverse Bending (DDM) **AM 929**

Coupled Response
The Coupled Response of a Dynamic Element Riding on a Continuously Supported Beam **AM 864**

Coupled Vertical-Lateral Dynamics
Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part I—A Mathematical Model **DS 311**; Part II—Simulated Versus Experimental Data **DS 319**

Coupled Vibration
Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) **MD 540**

Cox, J. J. Optimization of Rail Vehicle Operating Speed With Practical Constraints (78-WA/DSC-28) **DS 260**

Coxon, M. Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**

Coy, J. J. Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) **MD 54**

Crack Elastic Solid
Three-Dimensional Wave Propagation in a Cracked Elastic Solid **AM 807**

Crack Extension
Application of Resistance Curves to Residual Strength Prediction **MT 138**

Crack Fracture Parameter
On the Estimation of a Crack Fracture Parameter by Long-Wavelength Scattering (BN) **AM 453**

Crack Growth
Analysis of Closure in Fatigue Crack Growth **AM 267**
Application of the R-Curve Concept to Fatigue Crack Growth **MT 416**
Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) **MT 381**
Cryogenic Tensile, Fatigue, and Fracture Parameters for a Solution-Annealed 18 Percent Nickel Maraging Steel **MT 189**
Fatigue Crack Growth of Bondline Cracks in Structural Bonded Joints **MT 39**
Fracture Mechanics Approach to Fatigue Analysis in Design **MT 113**
J-Integral Approach to Fracture of Rotating Disk **MT 128**
A Means of Assessing the Effects of Periodic Proof Testing and NDE on the Reliability of Cyclically Loaded Structures (77-PVP-44) **PVT 150**
A Parametric Study of Fatigue Crack Growth Behavior in Adhesively Bonded Metallic Structures (D) (AC) **MT 223**
Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) **L 156**; (D) (AC) **L 165**
Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) **MT 57**
A Weakest-Link Model for the Prediction of Fatigue Crack Growth Rate **MT 170**

Crack Growth Behavior
A Parametric Study of Fatigue Crack Growth Behavior in Adhesively Bonded Metallic Structures (77-WA/Mat-5) **MT 46**

Crack-Growth Rates
Growth Characteristics of a Fatigue Crack Approaching and Growing Beneath an Adhesively Bonded Doubler (77-WA/Mat-14) **MT 52**

Crack Growth Resistance
Crack Growth Resistance at Low Stress Intensities **MT 134**
J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) **MT 248**

Crack Initiation
Fatigue Life Prediction of Complex Structures (77-DE-46) **MD 2**

Crack-Perpendicular Tension
Fracture Under Combined Loads by Maximum-Energy-Release-Rate Criterion **AM 553**

Crack Plane
Angled Elliptic Notch Problem in Compression and Tension **AM 258**

Crack Problems
Elastodynamic Crack Problems (BR) **AM 230**

Crack Propagation
Fatigue Crack Propagation in 8- and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) **MT 32**
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) **PVT 13**
Influence of Rotatory Inertia on Steady-State Crack Propagation in a Finite Plate Subjected to Out-of-Plane Bending **AM 130**

Crack Tips
Fracture Analysis of Adhesively Bonded Cracked Panels (77-WA/Mat-2) **MT 10**

Crack Velocities
Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**

Cracked Panels
Fracture Analysis of Adhesively Bonded Cracked Panels (77-WA/Mat-2) **MT 10**

Cracks
Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) **MT 18**
Analysis of Branched Cracks **AM 797**
Assessment of Weld Heat-Affected Zones in a Reactor Vessel Material (78-Mat-14) **MT 267**
Asymmetric Branching of Cracks (D) **AM 701**; (AC) **AM 702**
Combined Mode Fracture Toughness Measurement by the Disk Test **MT 175**

Concerning Analysis of Central Burst in Metal Forming (TB) **I 386**

The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**

Dynamic Stress Concentration Around Two Coplanar Griffith Cracks in an Infinite Elastic Medium **AM 803**

Elastic-Plastic R-Curves (78-Mat-12) **MT 258**

Embedded Elliptical Crack at a Corner (78-PVP-5) **PVT 28**

Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **P 354**

Fatigue Strength and Maintenance of the Wheel-Axle Assembly for the Japanese Fast Train (Shinkansen) **MT 227**

Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Rock Masses **PVT 277**

Fracture Mechanics of Composite Materials **MT 233**

Gas Flow Through Cracks **F 453**

Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**

The Interface Crack (D) (AC) **AM 700**

The Interface Crack in a Shear Field **AM 287**

Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid with a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**

A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**

The Problem of Internal and Edge Cracks in an Orthotropic Strip (D) **AM 228**

Quarter Elliptical Cracks Emanating From Holes in Plates **MT 144**

A Ray Theory for Elastodynamic Stress-Intensity Factors **AM 123**

Status ASME XI Appendix A—Evaluation of Flaw Indications **PVT 417**

Stress-Intensity Factors for Arbitrarily Oriented Cracks in Shallow Shells **AM 135**

Stress Intensity Factors for Reactor Vessel Nozzle Cracks **PVT 141**

Stress Singularity at the Corner of a Wedge-Shaped Crack or Inclusion (78-WA/APM-6) **AM 791**

Sudden Appearance of a Crack in a Stretched Finite Strip **AM 277**

Thermal Damage and Rail Load Stresses in a 33-Inch Railroad Car Wheel (77-WA/RT-2) **I 363**

Thermographic Determination of Fatigue Damage **MT 200**

A Thick-Walled Cylinder With An Axisymmetric Internal or Edge Crack (77-WA/APM-8) **AM 281**

Crandall, S. H. Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) **MD 100**; Wide-Band Random Vibration of Circular Plates (77-DET-97) **MD 590**

Crank Mechanism

Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) **MD 319**

Crank-Type Generators

A General Theory for Synthesizing Crank-Type Four-Bar Function Generators With Transmission Angle Control **AM 415**

Crater Wear

Analytical Prediction of Three Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) **I 236**

Creep

An Analysis of High Temperature Metal Creep Part I: Experimental Definition of an Alloy **MT 363**; Part II: A Constitutive Formulation and Verification **MT 371**

Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-WA/APM-3) **AM 507**

An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) **MD 614**

A Flow Potential Function for Hyperbolic Sine Creep (BN) **AM 679**

Irradiation Effects on the Behavior of Structural Materials at Elevated Temperature **MT 121**

Mechanical Behavior of Nonlinear Visco-Elastic Celluloid Under Superimposed Hydrostatic Pressure **PVT 271**

Rules and Methods of Stress and Stability Calculations in the Presence of Creep (DDM) **AM 669**

A State Variable Interpretation of Some Rate-Dependent Inelastic Properties of Steel **MT 395**

Viscoplastic Constitutive Equations for Copper With Strain Rate History and Temperature Effects **MT 388**

Creep Curves

Construction of Nonlinear Monotonic Functions With Selectable Intervals of Almost Constant or Linear Behavior (78-WA/APM-22) **AM 780**

Creep Failure

Creep Failure of Rat Tail Tendon **BE 229**

Creep Properties

High Temperature Properties and Constitutive Equations for 1 Cr- ½ Mo Steel (77-PVP-50) **PVT 246**

Creep Relaxation

Creep Relaxation of Beam of General Cross Section Subjected to Mechanical and Thermal Loads (TB) **MD 626**

Creep Resistance Evaluation

Evaluation of the Creep Resistance of Wire Rope End Attachments (TB) **MT 214**

Creep-Rupture Data

On the Minimum-Commitment Method for Correlation of Creep-Rupture Data (TB) (78-Mat-18) **MT 333**

On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) **MT 319**

Creep Surface

Concerning a Creep Surface Derived From a Multiple Integral Representation for 304 Stainless Steel Under Combined Tension and Torsion (78-WA/APM-11) **AM 773**

Creep Theory

Numerical Analysis of Time-Dependent Inelastic Deformation in Metallic Media Using the Boundary-Integral Equation Method **AM 785**

Critical Location Concept

Fatigue Life Prediction of Complex Structures (77-DE-46) **MD 2**

Critical Speeds

Critical Speeds, Stability and Response of a Geared Train of Rotors (77-DET-30) **MD 535**; (D) **MD 538**; (AC) **MD 539**

Steady-State Unbalance Response of a Three-Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) **MD 563**

Critical Time Step

The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transients **HT 120**

Cronenberg, A. W. On the Thermodynamic Superheat Limit for Liquid Metals and Its Relation to the Leidenfrost Temperature (TN) **HT 734**

Crosbie, A. L. Two-Dimensional Multiple Scattering Comparison of Theory with Experiment (77-HT-48) **HT 480**

Cross Flow

Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) **MD 347**

Heat Transfer from a Cylinder Oscillating in a Cross-Flow **HT 684**

A Simplified Formula for Cross-Flow Heat Exchanger Effectiveness (TN) **HT 746**

Variable Viscosity Effect on the Laminar Water Boundary Layer on Heated Cones **AM 481**

Cross Flow Turbulence

Experimental Study of a Solid-Gas Jet Issuing Into a Transverse Stream (78-WA/FE-2) **F 333**; (D) **F 338**; (AC) **F 339**

Crossflow Heat Exchangers

The Effect of Longitudinal Heat Conduction on Crossflow Exchanger **HT 346**

Thermal Performance Deterioration in Crossflow Heat Exchanger due to the Flow Nonuniformity **HT 580**

Crossflow Reynolds Numbers

The Elliptic Porous Slider at Low Crossflow Reynolds Numbers (TB) **L 444**

Crowe, C. T. Calculation of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Wave (76-WA/FE-31) **F 355**; A Novel Physico-Computational Model for Quasi One-Dimensional Gas-Particle Flows (76-WA/FE-36) **F 343**; Periodic Discontinuities in the Acceleration of Spheres in Free Flight (D) **F 247**; (AC) **F 248**

Crowninshield, R. D. Use of Optimization Techniques to Predict Muscle Forces **BE 88**

Cruse, T. A. *(reviewer)* Integral Equation Methods in Potential Theory and Elastostatics (BR) **AM 966**

Crush Deformation

Analysis of Minimum Crush Deformation in Impact of Vehicles of Different Weight Classes (TB) **I 294**

Cryogenic Tensile Parameters

Cryogenic Tensile, Fatigue, and Fracture Parameters for a Solution-Annealed 18 Percent Nickel Maraging Steel **MT 189**

Crystal Plasticity

Further Investigation of a New Hardening Law in Crystal Plasticity **AM 500**

Cuboidal Zone

On the Stress Field and Surface Deformation in a Half Space With a Cuboidal Zone in Which Initial Strains Are Uniform **AM 302**

Cuffe, K. W. Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) **P 578**

Culver, G. G. Thermosyphon Models for Downhole Heat Exchanger Applications in Shallow Geothermal Systems **HT 713**

Cumpsty, N. A. Prediction of Compressor Performance in Rotating Stall (77-GT-10) **P 1**; (D) **P 13**; (AC) **P 14**; Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (D) (AC) **P 675**; Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**

Cumulative Damage

A New Cumulative Damage Model: Part I **AM 246**; Part 2 **AM 251**; Part 3 (78-WA/APM-19) **AM 733**

Cumulative Damage Rule

A Cumulative Damage Rule Based on Successive Reduction in Fatigue Limit (TB) **MT 212**

Cunningham, R. E. Steady-State Unbalance Response of a Three-Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) **MD 563**

Current Carrying Mechanisms

The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) **MD 574**

Current Meters

A Design Method on Propeller Current Meters (75-WA/FM-5) **F 83**

Current Weld Acceptance Criteria

An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) **PVT 85**

Curvature Effects

The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**

Radial Heat Transfer and Critical Biot Number With Radiation, Uniform Surface Heat Generation, and Curvature Effects in Convection (TN) **HT 374**

Curvature Parameter

Pressurized Cylindrical Shell With a Rigid Circular Inclusion **PVT 158**

Curvature Throughflow Program

Throughflow Calculations for Transonic Axial Flow Turbines **P 212**

Curve Development

Elastic-Plastic R-Curves (78-Mat-12) **MT 258**

Stiffness Coefficients and Allowable Loads for Nozzles in Flat-Bottom Storage Tanks (77-PVP-19) **PVT 389**

Curved Beams

Shear-Stress Formulas and the Shear Center for Curved Beams (BN) **AM 438**

Curved Boundaries

Dynamics of Viscoelastic Plate With Curved Boundaries of Arbitrary Shape **AM 629**

Curved Duct

Measurements of Skewed Boundary Layers in a Curved Duct With Variation in Streamwise Pressure Gradient (TB) **F 124**

Curved Surfaces

The Effects of Free-Stream Turbulence Intensity and Velocity Distribution on Heat Transfer to Curved Surfaces (77-GT-48) **P 159**

Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (D) **F 375**; (AC) **F 376**; (77-WA/FE-6) **F 37**; (D) **F 45**; (AC) **F 46**

Curved Walls

Analytical Solutions of Viscous Flow in Constricted or Widened Tubes **AM 241**

Film Cooling of a Gas Turbine Blade **P 476**

Curves

Application of Resistance Curves to Residual Strength Prediction **MT 138**

Fatigue Design Criterion for Pressure Vessel Alloys (D) **PVT 236**

High Temperature Properties and Constitutive Equations for 1 Cr-½ Mo Steel (77-PVP-50) **PVT 246**

Predetermination of the Relative Error on the Flow Coefficient of Orifice Meters in Nonstandard Approach

Conditions **F 60**
A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) **I 31**

Curvilinear Coordinates
Solution of Navier's Equation in Cylindrical Curvilinear Coordinates **AM 812**

Custer, J. Partial Spectral Expansions for Problems in Thermal Convection **HT 435**

Cutting
A Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) **MD 470**
Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) **I 88**
Tool Life Distributions Part 3: Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) **I 193**

Cutting Conditions
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) **I 318**

Cutting Efficiency
CAVIJET™ Augmented Deep-Hole Drilling Bits (77-Pet-54) **PVT 52**

Cutting Fluid
The Conflicting Roles of Carbontetrachloride as a Boundary Lubricant (77-WA/Prod-7) **I 244**

Cutting Force Parameters
Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) **I 332**; (D) (AC) **I 339**

Cutting Forces
Diamond Compact Cutter Supplies for Geothermal Bit Design **PVT 406**

Cutting Model
On a New Model of Oblique Cutting (77-WA/Prod-6) **I 287**

Cutting Parameters
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/Prod-4) **I 256**

Cutting Process
Analytical Prediction of Three Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) **I 222**; Part 2: Chip Formation and Cutting Force With Conventional Single-Point Tool (77-WA/Prod-10) **I 229**; Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) **I 236**
Orthogonal Machining of Bone **BE 122**

Cutting Process Dynamics
Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) **I 323**

Cutting Structures
Economic Factors of Mechanical Raise Boring (77-Pet-29) **PVT 98**

Cutting Tools
Correlation of Tempering Effect With Temperature Distribution in Steel Cutting Tools (77-WA/Prod-16) **I 131**
On a Diffusion Wear Model for High Speed Steel Tools **L 436**
Flank Wear Model of Cutting Tools Using Control Theory (77-WA/Prod-20) **I 103**
A New Cumulative Damage Model: Part 2 **AM 251**
Reducing the Temperature at Tool-Chip-Work Contact by Changing the Effective Thermal Conductivity of the Tool (TB) **I 387**

Cusano, C. On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) **L 296**; (D) **L 302**; (AC) **L 303**

Cycle Systems
Performance and Economics of Advanced Energy Conversion Systems for Coal and Coal-Derived Fuels **P 252**

Cycle Temperature
High-Temperature Potential of Uncooled Radial Turbines (77-GT-46) **P 294**

Cycle Thermodynamic Efficiency
A Novel Absorption Regeneration-Thermodynamic Heat Engine Cycle **P 566**

Cyclic Fatigue Crack Growth
Application of the R-Curve Concept to Fatigue Crack Growth **MT 416**

Cyclic Hardening
Cyclic Plasticity for Nonproportional Paths: Part 1—Cyclic Hardening, Erasure of Memory, and Subsequent Strain Hardening Experiments (77-WA/Mat-12) **MT 96**

Cyclic Internal Pressure
Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**

Cyclic Loading
Analysis of Closure in Fatigue Crack Growth **AM 267**
Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) **PVT 344**
Construction of Nonlinear Monotonic Functions With Selectable Intervals of Almost Constant or Linear Behavior (78-WA/APM-22) **AM 780**
Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**
On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**
Thermographic Determination of Fatigue Damage **MT 200**

Cyclic Plastic Bending
Stress-Strain Analysis of Cyclic Plastic Bending and Torsion **MT 157**

Cyclic Plasticity
Cyclic Plasticity for Nonproportional Paths: Part 1—Cyclic Hardening, Erasure of Memory, and Subsequent Strain Hardening Experiments (77-WA/Mat-12) **MT 96**, Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) **MT 104**

Cyclic Processes
The Second Law of Thermodynamics and Cyclic Processes **AM 487**

Cyclic Queuing Theory
Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/Prod-32) **I 468**

Cyclic Stress
An Analysis of High Temperature Metal Creep Part II: A Constitutive Formulation and Verification **MT 371**

Cyclic Thermal Stress
An Experimental Study of Progressive Strain Growth Due to Thermal-Stress Ratcheting **MT 150**

Cyclically Loaded Structures
A Means of Assessing the Effects of Periodic Proof Testing and NDE on the Reliability of Cyclically Loaded Structures (77-PVP-44) **PVT 150**

Cylinder-Cylinder Intersection
Lower-Bound Limit Pressures for the Cylinder-Cylinder Intersection: A Parametric Survey **PVT 65**

Cylinder Design Basis
Bursting Pressure as the Basis for Cylinder Design **PVT 374**

Cylinders
Approximate Numerical Solutions for Two-Dimensional Potential Flow Problems (TB) **F 122**
Boundary Layer Calculation for Analysis and Design **F 232**
Bucking of Short Cylinders Under Combined Loading **AM 574**
Centrifugally Cast Metallurgical Coatings for Wear Resistance in Plastics Molding Machines **L 423**
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) **MD 599**
The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow **F 210**
An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**
Experiments on the Role of Natural Convection in the Melting of Solids **HT 11**
On the Flexural Rigidity of Micropolar Elastic Circular Cylinder (BN) **AM 429**
The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments **PVT 297**
Heat Transfer from a Cylinder Oscillating in a Cross-Flow **HT 684**
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) **L 261**; (D) **L 269**; (AC) **L 270**
Inner Radius Expansion of a Cylinder or a Sphere Under Cold Working (BN) **AM 198**
Lift on a Rotating Porous Cylinder (D) **F 136**; (AC) **F 137**
A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) **L 110**
Natural Convection in a Horizontal Porous Medium Subjected to an End-to-End Temperature Difference **HT 191**
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**
Stability of a Cluster of Flexible Cylinders in Bounded Axial Flow (AC) **AM 703**; (D) **AM 455**
Stress-Induced Radial Pressure Gradients in Liquid-Filled Multiple Concentric Cylinders (D) **AM 228**
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) **AM 281**
Vibration of a Group of Circular Cylinders in a Confined Fluid (D) (AC) **AM 455**

Cylindrical Anisotropic Waves
Cylindrical Anisotropic Waves in a Nonhomogeneous Material (BN) **AM 687**

Cylindrical Annuli
An Experimental Study of Natural Convection Heat Transfer in Concentric and Eccentric Horizontal Cylindrical Annuli **HT 635**
Partial Spectral Expansions for Problems in Thermal Convection **HT 435**

Cylindrical Annulus Flow
Laminar-Turbulent Flow in a Spherical Annulus **F 281**

Cylindrical Bearings
Some Experiments of Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) **MD 147**

Cylindrical Bodies
The Acceleration of Thin Cylindrical Bodies in a Viscous Fluid **AM 1**
Saint-Venant's Principle for a Helical Spring **AM 297**

Cylindrical Coordinates
Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid With a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**

Cylindrical Electromechanical Shield
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) **MD 630**

Cylindrical Medium
Two-Dimensional Multiple Scattering Comparison of Theory with Experiment (77-HT-48) **HT 480**

Cylindrical Melting
Effect of Subcooling on Cylindrical Melting **HT 395**

Cylindrical Nozzles
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) **PVT 134**

Cylindrical Reactor
Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAS-54) **I 383**

Cylindrical Roller Bearing
The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearing (77-Lub-8) **L 18**
Measurement of Roller Speed in a Cylindrical Roller Bearing Using a Laser Anemometer **L 486**

Cylindrical Shells
Application of Stress Functions to Initial Stress Problems **AM 350**
Modal Method for Free Vibration of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**
Pressurized Cylindrical Shells With a Rigid Circular Inclusion **PVT 158**
Stress Concentration in a Stretched Cylindrical Shell With Two Elliptical Holes (78-WA/APM-18) **AM 839**
Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) **PVT 107**

Cylindrical Surface
A Local Nonsimilarity Analysis of Free Convection From a Horizontal Cylindrical Surface (TN) **HT 165**

Cylindrical Vessels
Geometry of Scalloped Closures for Cylindrical Vessels (TB) **PVT 310**

Czichos, H. *(author)* Tribology, A Systems Approach to the Science and Technology of Friction, Lubrication and Wear (BR) **MT 336**; *(author)* TRIBOLOGY: A Systems Approach to the Science and Technology of Friction, Lubrication and Wear (BR) **L 513**

D

Dagalakis, N. G. Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) **MD 630**

Dahm, T. J. Boundary Layer Closure and Heat Transfer in Constant Base Pressure and Simple Wave Guns **HT 690**

Dakin, J. T. On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (D) (AC) **P 591**; The Dynamics of Thin Liquid Films in Rotating Tubes: Approximate Analysis **F 187**

Dalcher, A. W. DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**

Dally, J. W. *(author)* Experimental Stress Analysis (BR) **AM 968**

Dalmaz, G. Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) **L 304**; (D) (AC) **L 307**

Dalton, C. The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments **PVT 297**; Lift on a Rotating Porous Cylinder (D) **F 136**; (AC) **F 137**

Dam Reservoir

Instability of Elastically Suspended Tainter-Gate System Caused By Surface Waves on the Reservoir of a Dam (D) **F 140**; (AC) **F 141**

Damage Assessment

Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) **MD 229**

Das Gupta, S. Bending of a Nonlinear Rectangular Beam in Large Deflection (BN) **AM 213**

Damage Distribution

A New Cumulative Damage Model—Part 3 (78-WA/APM-19) **AM 733**

Damage Effect

Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation **BE 49**

Damage Parameter

Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) **MD 619**

Damage Prediction

A New Cumulative Damage Model: Part I **AM 246**

Damage Rule

A Cumulazive Damage Rule Based on Successive Reduction in Fatigue Limit (TB) **MT 212**

Damped Bearings

Transient Response of a Rotor in Damped Bearings (77-DET-21) **MD 257**

Damped Linear Systems

Response of a Multidegree-of-Freedom System to Nonstationary Random Excitation **AM 649**

Damped Satellites

A Comparative Study of Liapunov Stability Analyses of Flexible Damped Satellites **AM 657**

Damped Systems

On the Shape Modes in Damped Systems (BN) **AM 951**

Simulation of Continuous Systems by Periodic Structures **AM 385**

A Theorem on the Free Vibration of Damped Systems (D) **AM 225**; (AC) **AM 226**

Damped Vibration Absorbers

Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structures (77-DET-84) **MD 279**

Damper Blades

Tailoring the Waveform of a Periodic Flow With a Programmable Damper **F 287**

Damper Forces

Investigation of Squeeze Film Damper Forces Produced by Circular Centered Orbits (77-GT-30) **P 15**

Damper Parameters

Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) **MD 681**

Dampers

Experiments on the Transient Response of Oil-Film Dampers (77-GT-31) **P 30**

Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) **MD 139**

The Dynamic Characteristics of O-Ring (77-DET-27) **MD 132**

Damping

Analysis of Dynamic Tilt Stiffness and Damping Coefficients of Externally Pressurized Porous Gas Journal Bearings **L 359**

Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) **MD 236**

An Analysis of the Three-Way Underlapped Hydraulic Spool Servovalve **DS 117**

An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) **MD 222**

Critical Speeds, Stability and Response of a Geared Train of Rotors (77-DET-30) **MD 535**; (D) **MD 538**; (AC) **MD 539**

The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) **MD 574**

Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) **MD 520**

Dynamic Characteristic of Multirecess Externally Pressurized Oil Journal Bearing **L 467**

The Effect of Spatial Distribution on Dynamic Snap-Through **AM 612**

First-Passage Time for Oscillators With Nonlinear Damping **AM 175**

Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**

An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) **MD 216**

Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) **MD 667**

Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**

Nonlinear Material Damping for Nonsinusoidal Strain **AM 883**

Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) **MD 500**

Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) **I 311**; (D) **I 316**; (AC) **I 317**

Rail Passenger Vehicle Lateral Dynamic Performance Improvement Through Active Control **DS 270**

Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) **MD 251**

Ride Quality of Autorack Cars (77-WA/RT-7) **I 171**

Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) **P 647**

A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) **MD 165**

Stress-Strain Analysis of Cyclic Plastic Bending and Torsion **MT 157**

Torquewhirl—A Theory to Explain Nonsynchronous Whirling Failures of Rotors With High-Load Torque **P 235**

Transient Response of Continuous Elastic Structures With Viscous Damping (78-WA/APM-5) **AM 877**

Damping Distribution

Uniqueness of Damping and Stiffness Distributions in the Identification of Soil and Structural Systems **AM 181**

Damping Forces

An Experimental Study of First-Passage Failure of a Randomly Excited Structure (78-WA/APM-14) **AM 917**

Damping Ratio

The Coupled Response of a Dynamic Element Riding on a Continuously Supported Beam **AM 864**

Darlow, M. S. The Dynamic Characteristics of O-Ring (77-DET-27) **MD 132**

Dasgupta, G. A Quadrature Representation of the Viscoelastic Analogy in the Frequency Domain (BN) **AM 955**

Dash, P. K. Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique **AM 393**

Daskavitz, M. J. Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) **P 575**

Daskivich, R. A. Asperity Interactions In EHD Contacts (D) **L 252**; (AC) **L 253**

Data Comparison

Summarization and Comparison of Freight Car Truck Load Data (77-WA/RT-3) **I 60**

Data Dependent Systems

Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) **I 318**

Data Optimization

Application of Goal Programming to Machinability Data Optimization (77-DET-19) **MD 286**

Datum Line Fixation

Datum Line Fixation for Linear Proportional Weirs (BN) **AM 441**

Dauer, F. W. Review of Wear Problems in the Computer Industry (D) **L 196**; (AC) **L 198**

Davis, D. *(author)* Battery-Flywheel Hybrid Electric Power System for Near-Term Application. Volume I. System Description (GR) **MD 203**; Volume II. System Design (GR) **MD 204**

Davis, E. A. A Flow Potential Function for Hyperbolic Sine Creep (BN) **AM 679**

Davis, L. R. Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**

Davis, W. J. A Generalized Decomposition Procedure and Its Application to Engineering Design (77-DET-62) **MD 739**

Davydenko's Lift Mechanism Design

A Rapid Approximate Solution to Davydenko's Lift Mechanism Design Problem (TB) **I 110**

Daws, J. W. Critical Speeds, Stability and Response of a Geared Train of Rotors (D) **MD 538**; (AC) **MD 539**

Dawson, T. H. *(author)* Theory and Practice of Solid Mechanics (BR) **AM 229**

Day, I. J. Prediction of Compressor Performance in Rotating Stall (77-GT-10) **P 1**; (D) **P 13**; (AC) **P 14**

Dean, J. K. Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) **PVT 34**

Dean, R. B. Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**; Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow **F 215**

Dean, R. C., Jr. New Editor; Prior Publication Policy; New Paper Length Policy (Ed) **F 2**

DeBear, W. S. Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) **P 347**

de Brederode, V. Influence of the Side Walls on the Turbulent Center-Plane Boundary-Layer in a Square Duct **F 91**

Decomposition Procedure

A Generalized Decomposition Procedure and Its Application to Engineering Design (77-DET-62) **MD 739**

Deep-Hole Drilling Bits

CAVIJET™ Augumented Deep-Hole Drilling Bits (77-Pet-54) **PVT 52**

Deflected Turbulent Jet

Prediction of the Three-Dimensional Velocity Field of a Deflected Turbulent Jet (D) **F 249**; (AC) **F 250**

Deflection

Bending of a Nonlinear Rectangular Beam in Large Deflection (BN) **AM 213**

Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**

Large Deflection of a Rectangular Plate Resting on a Pasternak-Type Elastic Foundation (Er) **AM 459**

Thermal Buckling of an Annular Plate With Axisymmetric Initial Deflection (BN) **AM 693**

Deflection Function

Impact Buckling of Thin Bar Via Monte Carlo Method **AM 586**

Deflective Welded Structures

An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) **PVT 85**

Deformation

Analysis of Minimum Crush Deformation in Impact of Vehicles of Different Weight Classes (TB) **I 294**

Analysis of Sheet Metal Stamping by a Finite-Element Method **AM 73**

The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) **MD 762**

Axisymmetric Bending of Annular Plates (78-WA/APM-27) **AM 834**

Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) **MD 374**

The Biomechanical Function of the Collagen Fibril Ultrastructure of Articular Cartilage **BE 105**

A Comparison of Deformation and Flow Theories Under Dynamic Loading Conditions (BN) **AM 431**

Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-WA/APM-3) **AM 507**

Deformation of Polymers During Hydrostatic Extrusion **PVT 400**

Deformations and Stresses in Soft Body Tissues of a Sitting Person **BE 79**

Effect of Strain Hardening on the Large Plastic Deformation of a Cantilever (BN) **AM 953**

Elastic and Elastic-Plastic Buckling of Internally Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) **PVT 335**

Experiments on Strain Rate History and Temperature Effects During the Plastic Deformation of Close-Packed Metals **AM 60**

A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**

Finite Extension of an Elastic Strand With a Central Core (78-WA/APM-7) **AM 852**

Further Developments in Anisotropic Plasticity **MT 294**

On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**

Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/Prod-29) **I 217**

A High-Order Theory of Plate Deformation: Part 1: Homogeneous Plates (D) (AC) **AM 702**

Indentation of a Membrane on an Elastic Half Space **AM 325**
Interferometric Deformation Measurement of Elastohydrodynamically Loaded Surfaces (TB) **L 506**
Left Ventricular Function: Correlation With Deformation of the Myocardium (77-WA/Bio-11) **BE 99**; (D) (AC) **BE 104**
Mechanical Behavior of Nonlinear Visco-Elastic Celluloid Under Superimposed Hydrostatic Pressure **PVT 271**
Modal Method for Free Vibration of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**
On a New Model of Oblique Cutting (77-WA/Prod-6) **I 287**
Nonlinear Material Damping for Nonsinusoidal Strain **AM 883**
Numerical Analysis of Time-Dependent Inelastic Deformation in Metallic Media Using the Boundary-Integral Equation Method **AM 785**
Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **MT 421**
Red Cell Motion and Deformation in the Microcirculation **BE 139**
Residual Strains Around Coldworked Fastener Holes **MT 310**
Rules and Methods of Stress and Stability Calculations in the Presence of Creep (DDM) **AM 669**
A Slip Model for Finite-Element Plasticity **AM 527**
A State Variable Interpretation of Some Rate-Dependent Inelastic Properties of Steel **MT 395**
Stress Analysis of Pipe Bends by Ring Elements **PVT 112**
On the Stress Field and Surface Deformation in a Half Space With a Cuboidal Zone in Which Initial Strains Are Uniform **AM 302**
Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**
Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**
On the Theories of Sheet Metal Necking and Forming Limits **MT 303**
Variables Influencing Degradation of SiC Abrasive Papers **L 501**
Viscoplastic Constitutive Equations for Copper With Strain Rate History and Temperature Effects **MT 388**

Deformation Analysis
Application of Stress Functions to Initial Stress Problems **AM 350**

Deformation Gradient
The Second Law of Thermodynamics and Cyclic Processes **AM 487**

Deformation Process
Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) **I 186**

Deformations
Finite Elasticity Solutions Using Hybrid Finite Elements Based on a Complementary Energy Principle (78-WA/APM-1) **AM 539**

Deforming Zone
Limit Analysis of Hollow Disk Forging: Part 2: Lower Bound (77-WA/Prod-3) **I 347**; (D) (AC) **I 345**

de Gee, A. W. J. Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear (D) (AC) **L 499**; Wear In Lubricated Journal Bearings **L 104**

Delph, T. J. Harmonic Wave Propagation in a Periodically Layered, Infinite Elastic Body: Antiplane Strain **AM 343**

Denison, E. B. Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) **PVT 172**

DeJong, R. G. Canine Pulmonary Input Impedance Measured by Transient Forced Oscillations **BE 67**

Density Distribution
Spatial Distribution of Active Sites and Bubble Flux Density **HT 56**

Density Function
Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique **AM 393**

Density-Stratified Fluids
Time-Dependent Double-Diffusive Instability in a Density-Stratified Fluid along a Heated Inclined Wall (78-HT-43) **HT 653**

Density Variation
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) **L 261**; (D) **L 269**; (AC) **L 270**

Density Variations
Vertical Channel Parallel Flow Modification Associated With Density Extremum (TB) **F 128**

Dented Configuration
Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**

Denton, J. D. Throughflow Calculations for Transonic Axial Flow Turbines **P 212**

Depooter, K. The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (D) **F 15**; (AC) **F 16** **F 10**

Depressurization Rates
Early Response of Hot Water to Sudden Release from High Pressure **HT 473**

Derkacs, T. High Frequency Ultrasonic Evaluation of Ceramics for Gas Turbines **P 549**

Desai, K. J. Moisture Measurements in a Low Pressure Steam Turbine Using a Laser Light Scattering Probe **P 544**

Design Analysis
Fracture Mechanics Approach to Fatigue Analysis in Design **MT 113**

Design Charts
Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) **L 279**; (D) **L 285**; (AC) **L 286**

Design Contact Ratio
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) **MD 715**

Design Criteria
Structural and Cooling Aspects of the Aden Nonaxisymmetric Exhaust Nozzle (77-GT-110) **P 308**
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) **MD 637**

Design Criterion
Fatigue Design Criterion for Pressure Vessel Alloys (D) **PVT 236**

Design Curves
Design Curves for Stress Analysis of U-Tube Heat Exchanger Tubesheet With Integral Channel and Head **PVT 221**

Design Data and Methods
Vibration Frequencies for a Uniform Cantilever With a Rotational Constraint at a Point (DDM) **AM 422**

Design Diagram
Bursting Pressure as the Basis for Cylinder Design **PVT 374**

Design Efficiency of Gears
The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) **MD 85**

Design Formula
Design of U-Shaped Bellows Considering Low-Cycle Fatigue **PVT 382**

Design Methodology
Analysis and Design of Machine Tool Chatter Control Systems Using the Regeneration Spectrum **DS 191**

Design Optimization
Optimum Design of Bridge Girders for Electric Overhead Traveling Cranes (76-WA/DE-28) **I 375**
Optimum Design of Control System Compensators **DS 140**
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) **MD 696**

Design Parameters
Notch Effects, Stress State, and Ductility **MT 348**
Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) **I 311**; (D) **I 316**; (AC) **I 317**
A Strategy for the Optimum Design of Acoustic Space (77-DET-44) **MD 411**

Design Philosophy
Pile Foundations in Frozen Soils (77-Pet-79) **PVT 302**

Design Process
On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/PROD-14) **I 127**
A Rapid Approximate Solution to Davydenko's Lift Mechanism Design Problem (TB) **I 110**

Design Reliability
Mechanical Reliability Confidence Limits (77-WA/DE-12) **MD 607**; (D) (AC) **MD 613**

Design Standards
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) **P 363**

Design Synthesis
Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) **MD 303**

Design Systems
Automatic Design (GR) **MD 205**

de Silva, B. M. E. Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) **MD 173**

Desulfurization
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) **P 520**

Deterministic Stability Analysis
Deterministic Stability Analysis of a Wind Loaded Structure **AM 165**

Development Progress
Progress in Railway Mechanical Engineering (1976-1977 Report of Survey Committee) Cars and Equipment (77-WA/RT-5) **I 79**

Deviation Angle
A Method of Calculating the Slip Factor of Centrifugal Compressors From Deviation Angle (77-GT-64) **P 121**

DeVor, R. E. An Experimental Strategy for Designing Tool Life Experiments (77-WA/Prod-24) **I 441**

DeVries, W. R. Machining Economics and Tool Life Variation—Part 1: Basic Considerations and their Practical Implications; Part 2: Application to Models for Machining Processes (D) **I 401**; (AC) **I 402**; An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) **I 153**

De Wilt, K. J. Laminar Boundary Layer Transfer over Rotating Bodies in Forced Flow **HT 496**; Liquid Jet Impingement Normal to a Disk in Zero Gravity (78-WA/FE-1) **F 204**

Dhande, S. G. Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) **MD 732**

Dharan, C. K. H. Fracture Mechanics of Composite Materials **MT 233**

Dhir, V. K. Natural Convection Heat Transfer in Beds of Inductively Heated Particles **HT 78**

Diagnostic System
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) **P 691**; (D) (AC) **P 697**

Diamond Compact Cutter
Diamond Compact Cutter Studies for Geothermal Bit Design **PVT 406**

Diamond Drill Bits
A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) **PVT 164**

Die Steels
MPC-6 "Effects of Melting and Processing Variables on Mechanical Properties of Steel" Properties of Extra Low Sulfur Engineering and Die Steel (D) (AC) **MT 223**

Diercks, D. R. Fatigue Design Criterion for Pressure Vessel Alloys (D) **PVT 243**

Dies
Analysis of Sheet Metal Stamping by a Finite-Element Method **AM 73**
Theory of Linear Continuous Extrusion—Linex (77-WA/Prod-17) **I 37**

Diesel Engines
Fuel Spray Trajectory in Diesel Engines (77-DGP-1) **P 326**

Diesel Spray
An Investigation of the Influence of Back Pressure on the Diffusion of Mass and Momentum of Fuel in Diesel Spray **P 241**

Differential Equations
Model Formulation of Complex Mechanisms With Multiple Inputs: Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) (AC) **MD 761**
Ordinary and Delay Differential Equations (BR) **AM 230**

Diffusers
Boundary Layer Calculation for Analysis and Design **F 232**
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) **P 444**
A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages **F 180**
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**
Transitory Stall Time-Scales for Plane-Wall Air Diffusers (TB) **F 133**

Diffusion
A Mixture Theory for Quasi-One-Dimensional Diffusion in Fiber-Reinforced Composites **HT 128**
A Theoretical Analysis of CO_2 Absorption in Sun Versus Shade Leaves **BE 20**

Diffusion Factor Correlation
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) **P 592**; (D) **P 601-602**; (AC) **P 602**
Diffusion Flames
Laminar Mixed-Mode, Forced and Free, Diffusion Flames **HT 253**
Diffusion Wear Model
On a Diffusion Wear Model for High Speed Steel Tools **L 436**
Diffusive Instability
Time-Dependent Double-Diffusive Instability in a Density-Stratified Fluid along a Heated Inclined Wall (78-HT-43) **HT 653**
Diffusivity
Thermal Diffusivity of Dispersed Materials **HT 720**
A Turbulent Energy Dissipation Model for Flows With Drag Reduction **F 107**
Digester Pulping Process
Use of Secondary Input for Process Control—An Application to a Digester Pulping Process **DS 88**
Digital Analyses
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) **MD 644**
Digital Computer
Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) **MD 681**
Digital Computer Program
A Control Algorithm For Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**
Digital Computers
Analysis of Leg Loading in Snow Skiing **DS 177**
Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) **MD 383**
Digital Control Method
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) **DS 50**
Digital Dynamic Simulation
Development of Gas Turbine Performance Seeking Logic (78-GT-13) **P 571**; (D) (AC) **P 575**
Digital Programs
Model Formulation of Complex Mechanisms With Multiple Inputs: Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) (AC) **MD 761**
Digital Simulation
Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) **MD 242**
First-Passage Time for Oscillators With Nonlinear Damping **AM 175**
Digital Simulation Results
The Response of an Oscillator With Bilinear Hysteresis to Stationary Random Excitation **AM 923**
Diller, K. R. Measurement of Burn-Induced Leakage of Macromolecules in Living Tissue **BE 153**; Therapeutic Effects of Postburn Cooling **BE 149**
Dimasi, F. A Parametric Study to Relate Speed to Permissible Combinations of Track Geometry Deviations **DS 252**
DiPrima, R. C. Asymptotic Methods for a General Finite Width Gas Slider Bearing **L 254**
Direct Time Integration Procedures
Computational Aspects of Time Integration Procedures in Structural Dynamics—Part 1: Implementation **AM 595**; Part 2: Error Propagation **AM 603**
Directional Stability
Application of The Parameter Plane Method to The Analysis of Directional Stability of Tractor-Semitrailers **DS 9**
Discharge Coefficient
Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) **F 265**; (D) **F 274**; (AC) **F 275**
Loss Characteristics of Orifices and Nozzles **F 299**
Discrete Microscopic Asperities
Two Temperature Gradients Model for Friction Failure (77-Lub-28) **L 479**; (D) **L 484**; (AC) **L 485**
Discrete Systems
Analytical Dynamics of Discrete Systems (BR) **AM 233**
Discrete-Time Computer Control
Optimum Design of Control System Compensators **DS 140**
Discrete Time Random Walk Analog
First-Passage Time for Oscillators With Nonlinear Damping **AM 175**
Discrete Time Series
Use of Secondary Input for Process Control—An Application to a Digester Pulping Process **DS 88**
Disk Brake Systems
Straight-Air Disk Brake Systems for Heavy Vehicles (77-DE-23) **MD 113**
Disk Forging
Disk and Strip Forging with Side-surface Foldover—Part 1: Velocity Field and Upper-Bound Analysis (77-WA/Prod-36) **I 421**; Part 2: Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) **I 428**
Limit Analysis of Hollow Disk Forging: Part 1: Upper Bound (77-WA/Prod-2) **I 340**; (D) (AC) **I 345**; Part 2: Lower Bound (77-WA/Prod-3) **I 347**; (D) (AC) **I 345**
Disk Scuffing Tests
Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) **L 121**
Disk Test
Combined Mode Fracture Toughness Measurement by the Disk Test **MT 175**
Disk Windows
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) **I 273**
Disks
Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**
Determining the Coefficient of Friction for Rolling Disks (77-Lub-11) **L 25**
Frictional Moment of Flow Between Two Concentric Spheres, One of Which Rotates **F 97**
High-Temperature Potential of Uncooled Radial Turbines (77-GT-46) **P 294**
J-Integral Approach to Fracture of Rotating Disk **MT 128**
Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**
Liquid Jet Impingement Normal to a Disk in Zero Gravity (78-WA/FE-1) **F 204**
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) **P 655**
A New Look at Radiation Configuration Factors between Disks (TN) **HT 742**
Nonaxisymmetric Flow through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**
Nonaxisymmetric Flow Through Annular Actuator Disks: The View From the Rotor (Ad) **P 615**
Reduction of Stress Concentration Due to Interference Fits in an Infinite Plate With Two Holes **PVT 369**
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) **P 647**
Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**
Torquewhirl—A Theory to Explain Nonsynchronous Whirling Failures of Rotors With High-Load Torque **P 235**
Dispersed Flow
Calculations of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (78-WA/FE-31) **F 355**
Dispersed Materials
Thermal Diffusivity of Dispersed Materials **HT 720**
Dispersion Equation
Harmonic Wave Propagation in a Periodically Layered, Infinite Elastic Body: Antiplane Strain **AM 343**
Dispersion Force
The Effects of the London-Van Der Waals Dispersion Force on Interline Heat Transfer **HT 155**
Dispersion Relations
Plane Progressive Waves in a Binary Mixture of Linear Elastic Materials **AM 493**
Dispersive Waves
Elastic Dispersion, Homogeneous Dispersive Media and an Application to Periodic Elastic Media **AM 337**
Experimental Study of Dispersive Waves in Beam and Rod Using FFT (BN) **AM 940**
Displacement Calculations
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) **MD 630**
Displacement Curves
A Study of Wall Ironing by the Finite Element Technique (77-WA/PROD-8) **I 31**
Displacement Excitation
Rotational Vibration With Backlash: Part 1 (77-DET-105) **MD 363**
Displacement Field
Application of Stress Functions to Initial Stress Problems **AM 350**
A Slip Model for Finite-Element Plasticity **AM 527**
Displacement Functions
On Uniform Convergence of the Finite-Element Method (BN) **AM 210**
Displacement Measurement
J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) **MT 248**
Displacement Value
Axial Impact Buckling of a Column With Random Initial Imperfections **AM 361**
Distorted Flow
Nonaxisymmetric Flow through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**
Distributed Deformation
Stress Analysis of Pipe Bends by Ring Elements **PVT 112**
Distributed Load
Annular Dome Subjected to Uniform Load Over an Eccentric Circular Area **AM 845**
Indentation of a Membrane on an Elastic Half Space **AM 320**
Distributed Loading
Transient Response of a Rotor in Damped Bearings (77-DET-21) **MD 257**
Distributed Loads
The End-Values of Distributed Loads in Half Planes by Caustics **AM 313**
Simulation of Continuous Systems by Periodic Structures **AM 385**
Distributed Parameter Dynamic Systems
A Methodology for Optimal Sensor Locations for Identification of Dynamic Systems **AM 188**
Distributed-Parameter Systems
Optimal Allocation of Actuators for Distributed-Parameter Systems (TB) **DS 227**
Stability Tests for One, Two, and Multidimensional Linear Systems **DS 105**
Distributed Random Function
Impact Buckling of Thin Bar Via Monte Carlo Method **AM 586**
Distributed Tool Life
Tool Life Distributions Part 4: Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) **I 201**
Distribution Curves
An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) **I 1**
Distribution Functions
Axial Impact Buckling of a Column With Random Initial Imperfections **AM 361**
Tool Life Distributions Part 3: Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) **I 193**
Disturbances
Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**
Quasi-Bifurcation of Rods Within an Axial Plastic Compressive Wave **AM 100**
Some Effects of Mechanically-Produced Unsteady Boundary Layer Flows on Convective Heat Transfer Augmentation **HT 25**
Use of Secondary Input for Process Control—An Application to a Digester Pulping Process **DS 88**
Divergence Buckling
Divergence Buckling of a Simple Frame, Subject to a Follower Force (BN) **AM 426**
Donovan, P. The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) **P 640**
Dokainish, M. A. On the Nonlinear Response of a Relief Valve (77-DET-81) **MD 675**
Dolan, R. B. Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) **I 261**; (D) **I 271**; (AC) **I 272**
Domain Realignment Dynamics
On the Behavior of Acceleration Waves in Elastic Dielectrics With Internal State Variables **AM 745**
Dornfeld, D. Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) **I 147**
Dornfeld, D. A. Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) **I 181**; An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) **I 153**
Dorschu, K. E. Factors Affecting Weld Metal Properties in Carbon and Low Alloy Pressure Vessel Steels **PVT 131**
Dost, S. Application of Stress Functions to Initial Stress Problems **AM 350**

Doty, L. F. An Efficient Algorithm for Evaluating Arrays of Extended Surface **HT 288**

Double Cantilever Beams
Shear Fracture Propagation by DCB Testing (77-Pet-33) **PVT 18**

Double Pulse Holography
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) **P 6552**

Dougherty, R. L. Two-Dimensional Multiple Scattering Comparison of Theory with Experiment (77-HT-48) **HT 480**

Douglass, R. W. Partial Spectral Expansions for Problems in Thermal Convection **HT 435**

Dousis, D. A. Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) **I 459**; (D) (AC) **I 466**

Dow, T. A. A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) **L 110**

Dowell, E. H. The Coupled Response of a Dynamic Element Riding on a Continuously Supported Beam **AM 864**

Dowling, N. E. Stress-Strain Analysis of Cyclic Plastic Bending and Torsion **MT 157**

Downhole Flow
On the Flow Regimes of Downhole Flow of a Gas-Particle Mixture **F 410**

Downhole Heat Exchangers
Thermosyphon Models for Downhole Heat Exchanger Applications in Shallow Geothermal Systems **HT 713**

Dowson, D. *(author)* Elasto-Hydrodynamic Lubrication (BR) **L 447**; *(editor)* Men of Tribology **L 2**; **L 148**; **L 311**; **L 455**; Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) **L 236**; (D) (AC) **L 245**; The Wear of High Molecular Weight Polyethylene—Part I: The Wear of Isotropic Polyethylene Against Dry Stainless Steel in Unidirectional Motion **L 208**

Draft-Gear Behavior
A Simple Dynamic Model For Simulating Draft-Gear Behavior In Rail-Car Impacts (78-RT-2) **I 492**

Drafting Rollers
Calculation of Peak Yarn Tension During Ring-Spinning (77-Tex-6) **I 167**

Drag Coefficients
A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) **F 443**

A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) **F 434**

A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) **F 439**

Drag Reduction
A Turbulent Energy Dissipation Model for Flows With Drag Reduction **F 107**

Draw Force
Stress in Glass Fibers Induced by the Draw Force (78-WA/APM-21) **AM 785**

Dressed Wheel Surfaces
Mechanics of Rotary Dressing of Grinding Wheels (77-WA/PROD-23) **I 95**

Drill Bits
Diamond Compact Cutter Studies for Geothermal Bit Design **PVT 406**

A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) **PVT 164**

Stratapax Drill Bit for Gulf Coast Drilling (TB) (77-Pet-74) **PVT 234**

Drilling Bits
CAVIJET™ Augmented Deep-Hole Drilling Bits (77-Pet-54) **PVT 52**

The RAPIDEX Conical Reamer (77-Pet-31) **PVT 60**

Drilling Hydraulics
Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) **PVT 172**

Drilling Process
Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-69) **PVT 179**

Drilling Research
Techniques of Pilot-Scale Drilling Research (77-Pet-68) **PVT 188**

Drilling System
Economic Factors of Mechanical Raise Boring (77-Pet-29) **PVT 98**

Driver, R. D. *(author)* Ordinary and Differential Equations (BR) **AM 230**

Driving Force
Concerning Analysis of Central Burst in Metal Forming (TB) **I 386**

Droplet Growth
On the Growth of Steam Droplets Formed in a Laval Nozzle Using Both Static Pressure and Light Scattering Measurements **F 311**

Droplet-In-Vapor Flows
Calculation of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (78-WA/FE-31) **F 355**

Droplet Size Influence
The Influence of Droplet Size on the Turbine Blading Erosion Hazard **P 561**

Dry Granular Media
Granular Material Flow in Two-Dimensional Hoppers **AM 43**

Dry Surface
An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**

Dryburgh, D. C. The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) **P 630**

D'Souza, A. F. Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) **MD 92**

DuChateau, P. C. Determination of Unknown Coefficients in Parabolic Operators from Overspecified Initial-Boundary Data **HT 503**

Duckworth, W. Structural Designing With Ceramic Materials **P 260**

Duct Flow
Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow (D) (AC) **F 377**

Ductile Fracture
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) **PVT 13**

A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**

Ductile Machine Elements
An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) **MD 614**

Ductility
Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) **PVT 77**

Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/Prod-29) **I 217**

Irradiation Effects on the Behavior of Structural Materials at Elevated Temperature **MT 121**

Notch Effects, Stress State, and Ductility **MT 348**

The Room Temperature and Elevated Temperature Fracture Toughness Response of Alloy A-286 **MT 195**

Ductility Temperature
Comparison of Dynamic Tear and Charpy-V-Notch Impact Properties of Plate Steels **MT 204**

Ducts
A Correlation for Laminar Hydrodynamic Entry Length Solutions for Circular and Noncircular Ducts **F 177**

Laminar Free Convection Heat Transfer through Horizontal Duct Connecting Two Fluid Reservoirs at Different Temperatures (TN) **HT 725**

Modified Governing Equations for Unsteady Compressible Flow in Ducts **AM 723**

The Numerical Prediction of the Turbulent Flow and Heat Transfer in the Entrance Region of a Parallel Plate Duct (D) **HT 581**; (AC) **HT 562**

Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow **F 215**

Second Flow in Rotating Bends **P 553**

Duff, W. S. Performance Analysis of Pancake Absorber-Helical Heat Exchanger for a Solar Concentrator **P 178**

Duffy, J. Experiments on Strain Rate History and Temperature Effects During the Plastic Deformation of Close-Packed Metals **AM 60**

Dukkipati, R. V. Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) **MD 303**

Dundurs, J. Elastic Interface Waves and Sliding Between Two Solids **AM 325**; The Interface Crack (D) (AC) **AM 700**; Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**

Dunker, R. J. Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**

duPlessis, M. P. High Energy Water Jet Cutting Equations for Wood (77-WA/Prod-18) **I 452**; Simulation of Cardiovascular Dynamics With the All-Pneumatic Artificial Ventricle System as a Replacement of the Myocardial Function **BE 35**; Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) **I 88**

Durning, R. F. Power System Economics: On Selection of Engineering Alternatives (77-JPGC-Pwr-7) **P 333**; (D) **P 343**; (AC) **P 346**

Dust-Collecting Plates
Response of Collecting Plates in Electrostatic Precipitators Due to Shear Rapping (77-DET-98) **MD 1052**

Dusty Buoyant Thermal
Motion of a Large Dusty Buoyant Thermal With a Vortex Ring (78-WA/APM-8) **AM 711**

Dye, J. Economic Factors of Mechanical Raise Boring (77-Pet-29) **PVT 98**

Dyer, D. Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) **MD 229**

Dynamic Absorbers
Use of Dynamic Absorbers to Control Parametric Instabilities of a Pipe (BN) **AM 949**

Dynamic Analysis
Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) **PVT 200**

Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) **MD 520**

The Dynamic Analysis of Shallow Spherical Shells (BN) **AM 690**

Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) **MD 319**

A Survey of Rail Vehicle Testing for Validation of Theoretical Dynamic Analyses **DS 238**

Dynamic Behavior
Deterministic Stability Analysis of a Wind Loaded Structure **AM 165**

Experiments on the Dynamic Behavior of Cavitating Pumps **F 166**

On the Nonlinear Response of a Relief Valve (77-DET-81) **MD 675**

Some Experiments of Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) **MD 147**

Pipes Supported at Both Ends Cannot Flutter **AM 619**

Simulation of the Influence of Bonding Materials on the Dynamic Behavior of Laminated Composites (78-WA/APM-15) **AM 822**

Torsional Vibrations of a Boiler Feed Pump (77-DET-28) **MD 637**

Dynamic Characteristics
Dynamic Characteristic of Multirecess Externally Pressurized Oil Journal Bearing **L 457**

The Dynamic Characteristics of O-Rings (77-DET-27) **MD 132**

Identification of the Dynamic Characteristics of a Bench-Type Automotive Seat for the Evaluation of Ride Quality **DS 42**

Dynamic Contact
An Exact Solution for the Superseismic Stage of Dynamic Contact Between a Punch and an Elastic Body (Er) **AM 459**

Dynamic Criteria
Normal Mode Solution of Fluid-Coupled Concentric Cylindrical Vessels (77-PVP-37) **PVT 350**

Dynamic Effects
Control of Clearance Effects in Mechanisms (77-WA/DE-2) **MD 728**

Dynamic Electromechanical Responses
One Dimensional, Linear Dynamic Electromechanical Responses of Ferroelectric Ceramics **AM 749**

Dynamic Element
The Coupled Response of a Dynamic Element Riding on a Continuously Supported Beam **AM 864**

Dynamic Excitation
Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) **MT 70**

Dynamic Expansion
On the Dynamic Expansion of a Circular Hole in an Infinite Plate of Rate-Sensitive Plastic Material **AM 67**

Dynamic Finite Element Analyses
Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**

Dynamic Forces
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) **L 369**; (AC) **L 377**
Investigation of Squeeze Film Damper Forces Produced by Circular Centered Orbits (77-GT-30) **P 15**
Dynamic Fracture Toughness
General Yielding of Charpy V-Notch and Precracked Charpy Specimens **MT 183**
Dynamic Fracture
Assessment of Weld Heat-Affected Zones in a Reactor Vessel Material (78-Mat-14) **MT 267**
Dynamic Hole Expansion Problem
The Dynamic Hole Expansion Problem for a Plate of Elastic-Perfect Plastic Material (BN) **AM 961**
Dynamic Instability
Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) **L 379**; (D) (AC) **L 384**
A Study of the Stability of an Externally-Pressurized Gas-Lubricated Thrust Bearing With a Flexible Damped Support **L 364**
Dynamic Joint Torque Data
Determining Muscle Forces in the Leg During Normal Human Walking—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) **BE 72**
Dynamic Loading
Contrasting Fracture Models For Granite Under Dynamic Loading **MT 287**
Dynamic Loading Conditions
A Comparison of Deformation and Flow Theories Under Dynamic Loading Conditions (BN) **AM 431**
Dynamic Model
Model Formulation of Complex Mechanisms With Multiple Inputs: Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) (AC) **MD 761**
Dynamic Moment Equations
Stationary Response of a Randomly Parametric Excited Nonlinear System (78-WA/APM-13) **AM 910**
Dynamic Performance Improvement
Rail Passenger Vehicle Lateral Dynamic Performance Improvement Through Active Control **DS 270**
Dynamic Plastic Instabilities
Dynamic Plastic Instabilities in Stretching Plates and Shells **AM 105**
Dynamic Programming
Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) **MD 173**
Dynamic Properties
Uniqueness of Damping and Stiffness Distributions in the Identification of Soil and Structural Systems **AM 181**
Dynamic Response
Determination of Transient Responses of a Thick-Walled Spherical Shell by the Ray Theory **AM 114**
Dynamic Response of Circular Plates Resting on Viscoelastic Half Space **AM 379**
Dynamic Response of Packets of Blades by the Finite Element Method (77-DET-70) **MD 660**
Effects of Jerk Limiting on the Stability of Automated Transit Vehicles **DS 298**
Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates **AM 521**
Mechanical Response of the Lungs at High Frequencies **BE 57**
The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity **AM 643**
Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) **MD 311**
Stability of a Vehicle on a Multispan Simply Supported Guideway **DS 326**
Sudden Appearance of a Crack in a Stretched Finite Strip **AM 277**
Transient Response of Continuous Elastic Structures With Viscous Damping (78-WA/APM-5) **AM 877**
Vibrations and Dynamic Response of Membranes With Arbitrary Shape **AM 153**
Dynamic Severity Criterion
Dynamic Severity Criterion for Designing Against High Cycle Fatigue (77-DE-28) **MD 10**
Dynamic Snap-Through
The Effect of Spatial Distribution on Dynamic Snap-Through **AM 612**
Dynamic Stability
Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**
Dynamic Stress
Dynamic Stress Concentration Around Two Coplanar Griffith Cracks in an Infinite Elastic Medium **AM 883**
Dynamic Stress-Intensity Factor
Influence of Rotatory Inertia on Steady-State Crack Propagation in a Finite Plate Subjected to Out-of-Plane Bending **AM 130**
Three-Dimensional Wave Propagation in a Cracked Elastic Solid **AM 807**
Dynamic Surface Response
The Effect of a Thin Layer Surface Inhomogeneity on Dynamic Surface Response **AM 95**
Dynamic System Performance
The Use of Sensitivity Functions to Match Matrix Transfer Functions to Time-Domain Performance Criteria **DS 187**
Dynamic Systems
Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) **MD 480**
A Methodology for Optimal Sensor Locations for Locations for Identification of Dynamic Systems **AM 188**
Model Verification of Mixed Dynamic Systems (77-DET-85) **MD 266**
Pseudo Bond Graphs for Thermal Energy Transport **DS 165**
Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) **MD 492**; (D) (AC) **MD 498**
Transportation Research and the Role of Dynamic Systems, Measurement, and Control (F) **DS 233**
Dynamic Tear
Comparison of Dynamic Tear and Charpy-V-Notch Impact Properties of Plate Steels **MT 204**
Dynamic Tilt Stiffness
Analysis of Dynamic Tilt Stiffness and Damping Coefficients of Externally Pressurized Porous Gas Journal Bearings **L 359**
Dynamic Tooth Loads
Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) **MD 69**
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) **MD 715**
Rotational Vibration With Backlash: Part 1 (77-DET-105) **MD 363**
Dynamic Vibration Neutralizer
Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) **MD 681**
Dynamical Systems
Bifurcations in Dynamical Systems With Internal Resonance (78-WA/APM-12) **AM 995**
Carathéodory Controllability Criterion for Nonlinear Dynamical Systems **DS 209**
A Comparative Study of Liapunov Stability Analyses of Flexible Damped Satellites **AM 657**
Dynamically Induced Stresses
Dynamically Induced Interfacial Stresses in Fibrous Composites (BN) **AM 442**
Dynamic Pressure Transducers
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) **P 664**; (D) (A) **P 675**
Dynamics
Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) **F 65**
An Analysis of the Three-Way Underlapped Hydraulic Spool Servovalve **DS 117**
Analytical Dynamics of Discrete Systems (BR) **AM 233**
Analytical Modeling of Helical Screw Turbines for Performance Prediction **P 482**
An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) **MD 222**
Approximation of Fundamental Equations for Finite-Dimensional Modeling of Thermal-Fluid Processes (TB) **P 722**
Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) **I 181**
A Brief History of Electrohydraulic Servomechanisms **DS 110**
The Component Element Method in Dynamics (BR) **AM 235**
Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 1: Implementation **AM 595**; Part 2: Error Propagation **AM 603**
Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part I—A Mathematical Model **DS 311**; Part II—Simulated Versus Experimental Data **DS 319**
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D) (AC) **P 591**
Dynamics of Developing Laminar Non-Newtonian Falling Liquid Films With Free Surface **AM 19**
Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) **MD 242**
Dynamics of Multirigid-Body Systems (78-WA/APM-10) **AM 889**
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**
Dynamics of Systems of Rigid Bodies (BR) **AM 458**
The Dynamics of Thin Liquid Films in Rotating Tubes: Approximate Analysis **F 187**
Dynamics of Viscoelastic Plate With Curved Boundaries of Arbitrary Shape **AM 629**
Fluid Dynamic Excitation of Centrifugal Compressor Rotor Vibrations (77-FE-22) **F 73**
Fluid Dynamics of the Circular Porous Slider (Er) **AM 236**
Fluid Dynamics of the Elliptic Porous Slider (BN) **AM 435**
Fluid Dynamics of the Long Porous Slider (Er) **AM 238**
The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) **L 219**; (D) **L 224**; (AC) **L 225**
A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**
Helicopter Dynamics (BR) **AM 966**
Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) **I 332**; (D) (AC) **I 339**
Implicit-Explicit Finite Elements in Transient Analysis: Implementation and Numerical Examples **AM 375**
Implicit-Explicit Finite Elements in Transient Analysis: Stability Theory **AM 371**
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) **MD 328**
Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) **I 323**
Longitudinal Control of Automated Guideway Transit Vehicles Within Platoons **DS 302**
Magnetic Suspension for Low-Speed Vehicles **DS 333**
Model Formulation of Complex Mechanisms With Multiple Inputs: Part 1—Geometry (77-WA/DE-9) **MD 747**
Nonlinear Kinematics of Wheel-Rail Contact **AM 664**
Numerical Methods in Fluid Dynamics (BR) **DS 161**
Optimization of Rail Vehicle Operating Speed With Practical Constraints (78-WA/DSC-28) **DS 260**
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) **P 647**
Simulation of Cardiovascular Dynamics With the All-Pneumatic Artificial Ventricle System as a Replacement of the Myocardial Function **BE 35**
Stored Response Modeling **DS 132**
A Technique for Compensating the Filter Performance by a Fictitious Noise **DS 154**
Wheel Rotations and Trailer Dynamics (BN) **AM 206**

E

Earnheart, B. G. The Past, Present and Future of Section X of the ASME Boiler and Pressure Vessel Code **PVT 219**
Earth Penetrators
Initial Response of a Rock Penetrator **AM 559**
Eaton, J. On Vortex Wind Power (D) **F 252**; (AC) **F 253**
Eccentric Annular Impact Load
Dynamics of Viscoelastic Plate With Curved Boundaries of Arbitrary Shape **AM 629**
Eccentric Circular Area
Annular Dome Subjected to Uniform Load Over an Eccentric Circular Area **AM 845**
Eccentric Holes
Vibration Analysis of Circular Plates With Eccentric Hole (BN) **AM 215**
Eccentricity
An Experimental Study of Natural Convection Heat Transfer in Concentric and Eccentric Horizontal Cylindrical Annuli **HT 635**
Eckert, E. R. G. Film Cooling of a Gas Turbine Blade **P 476**
Economic Factors
Economic Factors of Mechanical Raise Boring (77-Pet-29) **PVT 98**

Edgar, T. F. An Assessment of Overburden Stability in the In-Situ Gasification of Texas Lignite **PVT 285**

Edge Cracks
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-APM-8) **AM 281**
The Problem of Internal and Edge Cracks in an Orthotropic Strip (D) **AM 228**

Edge Displacements
Effect of Stress-Free Edges in Plane Shear of a Rectangular Orthotropic Region **AM 367**

Edge Effects
Leading Edge Effects in Transient Natural Convection Flow Adjacent to a Vertical Surface (TN) **HT 731**
Three-Dimensional Elasticity Solution and Edge Effects in a Spherical (D) **AM 700**; (AC) **AM 701**

Editorials
Journal Operations **MD 201**
New Editor; Prior Publication Policy; New Paper Length Policy **F 2**
"Proof of the Pudding"; "Form Follows Function" **MT 337**

Eguchi, K. Cold Flame Tests of a Bluff-Body Flame Stabilizer **F 323**

Egambaram, T. R. The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) **I 13**

Eichler, J. Stored Response Modeling **DS 132**

Eigenfunction Solutions
Eigenfunction Solutions for the Flexure of Clamped Rectangular Plates Lying on an Elastic Foundation (BN) **AM 211**

Eigenvalue Problems
Harmonic Waves in Layered Composites: New Bounds on Eigenfrequencies (78-WA/APM-23) **AM 829**
Roots of Lambda Matrices (78-WA/APM-4) **AM 859**

Eiss, N. S., Jr. Depth of Penetration as a Predictor of the Wear Polymers on Hard, Rough Surfaces **L 92**

El-Aini, Y. M. Determination of Admissible Temperature Increases to Prevent Track Buckling **AM 565**

Elastic Bars
Impact Buckling of Thin Bar Via Monte Carlo Method **AM 586**

Elastic Beam
Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) **MD 507**
Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) **MD 514**

Elastic Beam-Columns
Load-Deformation Behavior of Elastic Beam-Columns of Yielding Foundations **P 182**

Elastic Bodies
An Exact Solution for the Superseismic Stage of Dynamic Contact Between a Punch and an Elastic Body (Er) **AM 459**
Harmonic Wave Propagation in a Periodically Layered, Infinite Elastic Body: Antiplane Strain **AM 343**
The Second Law of Thermodynamics and Cyclic Processes **AM 487**

Elastic Branched Cracks
Analysis of Branched Cracks **AM 797**

Elastic Buckling
Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**
Elastic and Elastic-Plastic Buckling of Internally Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) **PVT 335**

Elastic Circular Cylinder
On the Flexural Rigidity of a Micropolar Elastic Circular Cylinder (BN) **AM 429**

Elastic Composites
Harmonic Waves in Layered Composites: New Bounds on Eigenfrequencies (78-WA/APM-23) **AM 829**

Elastic Deformation
Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) **I 159**
Rules and Methods of Stress and Stability Calculations in the Presence of Creep (DDM) **AM 689**
Stiffness Coefficients and Allowable Loads for Nozzles in Flat-Bottom Storage Tanks (77-PVP-19) **PVT 389**
Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**
Viscoplastic Constitutive Equations for Copper With Strain Rate History and Temperature Effects **MT 388**

Elastic Design Methods
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) **P 358**

Elastic Dielectrics
On the Behavior of Acceleration Waves in Elastic Dielectrics With Internal State Variables **AM 745**

Elastic Disk
Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**

Elastic Dispersion
Elastic Dispersion, Homogeneous Dispersive Media and an Application to Periodic Elastic Media **AM 337**

Elastic Distortion
The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearing (77-Lub-8) **L 18**

Elastic Foundation
Eigenfunction Solutions for the Flexure of Clamped Rectangular Plates Lying on an Elastic Foundation (BN) **AM 211**
Large Deflection of a Rectangular Plate Resting on a Pasternak-Type Elastic Foundation (Er) **AM 459**
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-18) **P 363**

Elastic Half Planes
An Elastic Strip Pressed Against an Elastic Half Plane by a Steadily Moving Force **AM 89**
The End-Values of Distributed Loads in Half Planes by Caustics **AM 313**

Elastic Half Space
Dynamic Response of Circular Plates Resting on Viscoelastic Half Space **AM 379**
Indentation of a Membrane on an Elastic Half Space **AM 320**

Elastic Half Space Surface
The Effect of a Thin Layer Surface Inhomogeneity on Dynamic Surface Response **AM 95**

Elastic Helical Spring
Saint-Venant's Principle for a Helical Spring **AM 297**

Elastic Interface Waves
Elastic Interface Waves Involving Separation (D) **AM 226**; (AC) **AM 227**
Elastic Interface Waves and Sliding Between Two Solids **AM 325**

Elastic Materials
Plane Progressive Waves in a Binary Mixture of Linear Elastic Materials **AM 493**
Stress in Glass Fibers Induced by the Draw Force (78-WA/APM-21) **AM 765**
On the Symmetry and Stability of Thermoelastic Solids **AM 740**

Elastic Medium
Dynamic Stress Concentration Around Two Coplanar Griffith Cracks in an Infinite Elastic Medium **AM 803**

Elastic Moduli
Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-APM-3) **AM 507**

Elastic Multirotor System
The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) **MD 156**

Elastic-Perfectly Plastic Material
The Dynamic Hole Expansion Problem for a Plate of Elastic-Perfectly Plastic Material (BN) **AM 961**

Elastic-Plastic Analysis
Application of Resistance Curves to Residual Strength Prediction **MT 138**

Elastic-Plastic Behavior
J-Integral Approach to Fracture of Rotating Disk **MT 128**

Elastic-Plastic Boundary
Measurement of the Elastic-Plastic Boundary Around Cold-worked Fastener Holes (78-WA/APM-2) **AM 515**

Elastic-Plastic Constitutive Behavior
A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**

Elastic-Plastic Finite Element
A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) **I 31**

Elastic-Plastic Materials
On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**

Elastic-Plastic Medium
Reflection of Acceleration Waves in an Elastic-Plastic Medium **AM 51**

Elastic-Plastic Plates
Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) **PVT 344**
Elastic-Plastic Plate With Arbitrary Poisson's Ratio (BN) **AM 205**

Elastic-Plastic R-Curves
Elastic-Plastic R-Curves (78-Mat-12) **MT 258**

Elastic-Plastic Response
Elastic-Plastic Response of 304 Stainless Steel Beams to Impulse Loads (BN) **AM 685**

Elastic Plate
Stability of a Nonlinear Rectangular Plate **AM 583**

Elastic Properties
Reduction of Stress Concentration Due to Interference Fits in an Infinite Plate With Two Holes **PVT 369**

Elastic Response
A State Variable Interpretation of Some Rate-Dependent Inelastic Properties of Steel **MT 395**

Elastic Ring
Nonlinear Flexural Vibration of an Elastic Ring (BN) **AM 428**

Elastic Rods
Experimental Study of Dispersive Waves in Beam and Rod Using FFT (BN) **AM 940**
Initial Response of a Rock Penetrator **AM 559**
Propagation of a Pulse in a Nonhomogeneous Elastic Rod With Varying Cross Section (BN) **AM 942**

Elastic Shell
Transient Motion of an Elastic Shell of Revolution in an Acoustic Medium **AM 149**

Elastic Sheet
Waves From Suddenly Punched Hole in Finitely Stretched Elastic Sheet **AM 83**

Elastic Solid
Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid With a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**
Three-Dimensional Wave Propagation in a Cracked Elastic Solid **AM 807**

Elastic Spacecraft
A Comparative Study of Liapunov Stability Analyses of Flexible Damped Satellites **AM 657**

Elastic Strain Field
On the Stress Field and Surface Deformation in a Half Space With a Cuboidal Zone in Which Initial Strains Are Uniform **AM 302**

Elastic Strand
Finite Extension of an Elastic Strand With a Central Core (78-WA/APM-7) **AM 852**

Elastic Strength
Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Fluid Ends (77-Pet-42) **PVT 39**

Elastic Strip
An Elastic Strip Pressed Against an Elastic Half Plane by a Steadily Moving Force **AM 89**
Sudden Appearance of a Crack in a Stretched Finite Strip **AM 277**

Elastic Structures
Stationary Response of a Randomly Parametric Excited Nonlinear System (78-WA/APM-13) **AM 910**
Transient Response of Continuous Elastic Structures With Viscous Damping (78-WA/APM-5) **AM 877**

Elastic-Viscoplastic Materials
On the Dynamic Expansion of a Circular Hole in an Infinite Plate of Rate-Sensitive Plastic Material **AM 67**

Elastic Waves
Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**

Elastically Isotropic Shallow Shell
Stress-Intensity Factors for Arbitrarily Oriented Cracks in Shallow Shells **AM 135**

Elasticity
Application of Stress Functions to Initial Stress Problems **AM 356**
Determination of Admissible Temperature Increases to Prevent Vertical Track Buckling **AM 565**
Finite Elasticity Solutions Using Hybrid Finite Elements Based on a Complementary Energy Principle (78-WA/APM-1) **AM 539**
Saint-Venant's Principle and End Effects in Anisotropic Elasticity (D) **AM 455**
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) **MD 630**
Three-Dimensional Elasticity Solution and Edge Effects in a Spherical Dome (D) **AM 700**; (AC) **AM 701**

Elastico-Viscous Fluid Lubrication
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) **L 287**; (D) **L 294**; (AC) **L 295**

Elastodynamic Stress-Intensity Factors
A Ray Theory for Elastodynamic Stress-Intensity Factors **AM 123**

Elastodynamics
Elastodynamic Crack Problems (BR) **AM 230**
Elastodynamics, Vol. II, Linear Theory (BR) **AM 229**

Finite-Element Methods for Nonlinear Elastodynamics Which Conserve Energy **AM 366**
Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**
Elastohydrodynamic (EHD) Contact
Asperity Interactions in EHD Contacts (77-Lub-19) **L 246**; (D) **L 252**; (AC) **L 253**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) **L 418**
Elastohydrodynamic Lubrication
An Approximate Equation for Predicting the Isothermal and Nonisothermal Starved Rolling Traction in an E.H.L. Line Contact **L 472**
The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact—Part I: Fully Flooded Conditions **L 346**; (Er) **L 466**; Part II: Starved Conditions **L 353**
Elasto-Hydrodynamic Lubrication (BR) **L 447**
Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) **L 236**; (D) (AC) **L 245**
Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) **L 404**; (D) **L 416**; (AC) **L 417**
Isothermal Elastohydrodynamic Lubrication of Point Contacts Part IV-Starvation Results (D) (AC) **L 142**
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) **L 395**
Traction Behavior in Sliding ehl Contacts (77-Lub-5) **L 115**
Elastohydrodynamic (EHD) Rolling Contacts
Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) **L 386**; (D) **L 393**; (AC) **L 394**
Elastohydrodynamically Loaded Surfaces
Interferometric Deformation Measurement of Elastohydrodynamically Loaded Surfaces (TB) **L 508**
Elastohydrodynamics
Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) **L 304**; (D) (AC) **L 307**
Elastomer Dampers
The Dynamic Characteristics of O-Ring (77-DET-27) **MD 132**
Elastomeric Vibration Isolators
One Stage and Two Stage Vibration Isolators as Applied to High Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) **MD 33**
Elastomers
The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) **L 219**; (D) **L 224**; (AC) **L 225**
Elastoplastic Analysis
Design of U-Shaped Bellows Considering Low-Cycle Fatigue **PVT 382**
Elasto-Plastic Transition
Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates **AM 521**
Elastostatics
Integral Equation Methods in Potential Theory and Elastostatic (BR) **AM 966**
Electric Cable Systems
Flow and Heat Transfer in Convectively Cooled Underground Electric Cable Systems: Part 1—Velocity Distributions and Pressure Drop Correlations (76-WA/HT-45) **HT 30**; Part 2—Temperature Distributions and Heat Transfer Correlations (76-WA/HT-42) **HT 36**
Electric Contacts
Review of Wear Problems in the Computer Industry (77-Lub-4) **L 189**; (D) **L 195-197**; (AC) **L 198**
Electric Overhead Traveling Cranes
Optimum Design of Bridge Girders for Electric Overhead Traveling Cranes (76-WA/DE-28) **I 375**
Electric Power Systems
Battery-Flywheel Hybrid Electric Power System for Near-Term Application. Volume I. System Description (BR) **MD 203**; Volume 2. System Design (BR) **MD 204**
A Heat-Recovery System for Process Steam Industries (77-WA/Ener-5) **P 511**
Electric Powered Motor Vehicles
Comparative Measurements of Different Electric Drives for an Experimental Motor Vehicle **MD 204**
Electric Utility Systems
Power System Economics: On Selection of Engineering Alternatives (77-JPGC-Pwr-7) **P 333**; (D) **P 343**; (AC) **P 348**
Electrical Analogue
Interferometric Investigation of Turbulently Fluctuating Temperature in an LMFBR Outlet Plenum Geometry (76-WA/HT-82) **HT 334**
Electrical Method
An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) **MD 614**
Electrical Potentials
Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) **PVT 24**
Electrical Power Production
A Novel Absorption Regeneration-Thermodynamic Heat Engine Cycle **P 566**
Electrical Resistance
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**
Thermal Properties of Tungsten SRM'S 730 and 799 **HT 330**
Electrical Resistance Heating
A Thermodynamic Study of Heating with Geothermal Energy (77-WA/Ener-1) **P 503**
Electro-Discharge Maching Process
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/PROD-19) **I 303**; (D) **I 309**; (AC) **I 310**
Electrodynamics
The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) **MD 574**
Electrohydraulic Servomechanisms
A Brief History of Electrohydraulic Servomechanisms **DS 110**
Electromagnetic Radiation
Two-Dimensional Multiple Scattering Comparison of Theory with Experiment (77-HT-48) **HT 480**
Electromechanical Pressure Transducer
A Novel Pressure Transducer Using Mechanical Resonance **DS 83**
Electromechanical Responses
One Dimensional, Linear Dynamic Electromechanical Responses of Ferroelectric Ceramics **AM 749**
Electromechanical Shield
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) **MD 630**
Electrostatic Precipitators
Response of Collecting Plates in Electrostatic Precipitators Due to Shear Rapping (77-DET-98) **MD 105**
Elevated Pipeline
Effect of an Elevated Pipeline on Moss Covered Ground Temperature **HT 363**
Elevated Temperatures
Constitutive Modeling of Elevated Temperature Stress Relaxation in Austenitic Stainless Steels (TB) **MT 221**
An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) **MD 614**
Irradiation Effects on the Behavior of Structural Materials at Elevated Temperature **MT 121**
The Room Temperature and Elevated Temperature Fracture Toughness Response of Alloy A-286 **MT 195**
Elin, F. An Experimental Study of Elasto-Plastic Response of Branch-Pipe Tee Connections Subjected to Internal Pressure, External Couples and Combined Loadings **PVT 131**
Elishakoff, I. Axial Impact Buckling of a Column With Random Initial Imperfections **AM 361**; Impact Buckling of Thin Bar Via Monte Carlo Method **AM 586**
Elkins, W. A Portable Personal Cooling System for Mine Rescue Operations (77-ENAS-53) **I 53**
Elkoth, M. M. Fuel Spray Trajectory in Diesel Engines (77-DGP-1) **P 326**
Elkouh, A. F. Approximate Solution for Pulsatile Laminar Flow in a Circular Rigid Tube (TB) **F 131**
Ellingwood, B. R. An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) **PVT 85**
Ellipsoidal Shells
Elastic and Elastic-Plastic Buckling of Internally Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) **PVT 335**
Elliptic Cylinders
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**
Elliptic Inclusions
On Rigid Elliptic Inclusions in Orthotropic Solids (BN) **AM 683**
Elliptic Notch
Angled Elliptic Notch Problem in Compression and Tension **AM 258**
Elliptic Porous Slider
The Elliptic Porous Slider at Low Crossflow Reynolds Numbers (TB) **L 444**
Fluid Dynamics of the Elliptic Porous Slider (BN) **AM 435**
Elliptic Problems
The Finite Element Method for Elliptic Problems (BR) **AM 968**
Elliptical Contacts
Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) **L 236**; (D) (AC) **L 245**
Elliptical Cracks
Embedded Elliptical Crack at a Corner (78-PVP-5) **PVT 28**
Quarter Elliptical Cracks Emanating From Holes in Plates **MT 144**
Elliptical Holes
Riemann-Integral Solutions for the Plastic Slip-Line Fields Around Elliptical Holes (BN) **AM 678**
Stress Concentration in a Stretched Cylindrical Shell With Two Elliptical Holes (78-WA/APM-18) **AM 839**
Temperatures in an Anisotropic Sheet Containing an Insulated Elliptical Hole (TN) **HT 553**
Ellis, D. G. Creep Failure of Rat Tail Tendon **BE 229**
Elmadany, M. M. On the Nonlinear Response of a Relief Valve (77-DET-81) **MD 675**
El-Masri, M. A. On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D) (AC) **P 591**
ElSherbiny, S. M. Free Convection across Inclined Air Layers with One Surface V-Corrugated **HT 410**
El-Taher, R. M. M. The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Flow in Compressor Cascades (77-WA/FE-5) **F 22**
Embedded Flaw
Status ASME XI Appendix A—Evaluation of Flaw Indications **PVT 417**
Emery, A. F. Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 462**; Embedded Elliptical Crack at a Corner (78-PVP-5) **PVT 28**
Emission Coefficients
Infrared Mean Absorption Coefficients of Luminous Flames and Smoke **HT 235**
Emissions
Acoustic Emission Examination **PVT 127**
Development of a Hybrid Catalytic Combustor **P 277**
The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) **P 630**
The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) **P 640**
Low NOx Combustion of Paraho Shale Oil in a 45 MW Utility Boiler (77-WA/Fu-1) **P 393**
Emittance Properties
Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/Sol-1) **P 489**
Emulsions
Pool Boiling Heat Transfer to Emulsions **HT 613**
Enclosures
Radiation Augmented Fires within Enclosures (TN) **HT 544**
End Effects
Saint-Venant's Principle and End Effects in Anisotropic Elasticity (D) **AM 455**
End Temperatures
Laminar Natural Convection Heat Transfer in a Horizontal Cavity with Different End Temperatures **HT 641**
End-Values
The End-Values of Distributed Loads in Half Planes by Caustics **AM 713**
End-Wall Permeability
Natural Convection in a Horizontal Porous Medium Subjected to an End-to-End Temperature Difference **HT 191**
Endochronic Theories
Finite-Difference Solution for the Uniaxial Endochronic Viscoplastic Wave Problem (BN) **AM 221**
On the Uniqueness and Stability of Endochronic Theories of Material Behavior **AM 263**
Energy Absorption
The Determination of the J-Integral on Precracked Charpy

Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**
Elastic Interface Waves and Sliding Between Two Solids **AM 325**

Energy Alternatives
Special Engineering Problems of TFTR (77-WA/NE-4) **P 417**

Energy Conservation
Finite-Element Methods for Nonlinear Elastodynamics Which Conserve Energy **AM 366**
A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) **P 511**

Energy Consumption
Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) **I 147**

Energy Control
A Brief History of Electrohydraulic Servomechanisms **DS 110**

Energy Conversion Efficiency
Transportation Research and the Role of Dynamic Systems, Measurement, and Control (F) **DS 233**

Energy Conversion System
Performance and Economics of Advanced Energy Conversion Systems for Coal and Coal-Derived Fuels **P 252**

Energy Conversion Technique
A Novel Absorption Regeneration-Thermodynamic Heat Engine Cycle **P 566**

Energy Dissipation
An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) **MD 222**
A Turbulent Energy Dissipation Model for Flows With Drag Reduction **F 107**

Energy Extraction
Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Rock Masses **PVT 277**

Energy Flux Converter
The Flapwing, A Unique Fluid Machine Element **F 237**

Energy Method
Analytical Prediction of Three Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) **I 222**; Part 2: Chip Formation and Cutting Force With Conventional Single-Point Tool (77-WA/Prod-10) **I 229**; Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) **I 236**

Energy Principles
Finite Elasticity Solutions Using Hybrid Finite Elements Based on a Complementary Energy Principle (78-WA/APM-1) **AM 539**
Nonlinear Constitutive Relations for Human Brain Tissue **BE 44**

Energy Production
Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) **F 37**; (D) **F 45**; (AC) **F 46**

Energy Recovery
Fracture Discontinuities and Structural Analysis in Resource Recovery Endeavors (77-Pet-32) **PVT 2**

Energy Requirements
Energy Requirements of the Rail Mode (78-RT-1) **I 475**

Energy Sources
Fusion Energy (77-WA/NE-1) **P 399**
Hydrodynamic Stability in Horizontal Fluid Layers with Uniform Volumetric Energy Sources (TN) **HT 729**
Power Suppliers Need Nuclear (IPT) **PVT 326**

Energy Storage
A Parametric Study of Hot Water Storage for Peak Power Generation **P 229**
Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**
Two Thermodynamic Optima in the Design of Sensible Heat Units for Energy Storage **HT 708**
Transient Behavior of a Solid Sensible Heat Thermal Storage Exchanger **HT 148**

Energy Storage Control Systems
Optimal Control of On-Board and Station Flywheel Storage for Rail Transit Systems **DS 284**

Energy Structure
On Gyrobondgraphs and Their Uses **DS 76**

Energy Transfer
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/Prod-1) **I 113**

Energy Transformation
Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) **P 432**

Engel, P. A. *(author)* Impact Wear of Materials (BR) **AM 458**; Review of Wear Problems in the Computer Industry (77-Lub-4) **L 189**; (D) **L 195-197**; (AC) **L 198**

Engels, R. C. Simulation of Continuous Systems by Periodic Structures **AM 385**

Engine Certification
The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) **P 630**

Engine Displacement
Progress On The Variable—Displacement Spark Ignition Engine (GR) **MD 203**

Engine Overhaul Cost Reduction
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) **P 691**; (D) (AC) **P 697**

Engineering
Finite Element and Finite Difference Methods in Engineering (77-DE-45) **MD 188**
Finite Element Methods in Engineering (BR) **MD 591**
A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages **F 180**
Special Engineering Problem of TFTR (77-WA/NE-4) **P 417**

Engineering Alternatives
Power System Economics: On Selection of Engineering Alternatives (77-JPGC-Pwr-7) **P 333**; (D) **P 343**; (AC) **P 346**

Engineering Design
Fracture Mechanics Approach to Fatigue Analysis in Design **MT 113**

Engineering Design Application
A Generalized Decomposition Procedure and Its Application to Engineering Design (77-DET-62) **MD 739**

Engineering Design Handbook
Engineering Design Handbooks, From the Army Material Command (GR) **MD 588**

English, W. F. Fatigue Design Criterion for Pressure Vessel Alloys (D) **PVT 236**

Entrance Regions
Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (TN) **HT 539**
The Numerical Prediction of the Turbulent Flow and Heat Transfer in the Entrance Region of a Parallel Plate Duct (D) **HT 561**; (AC) **HT 562**

Environmental Behavior
The Influence of Material Variability on the Predicted Environmental Behavior of Composite Materials (77-WA/Mat-9) **MT 77**

Environmental Temperature
Effect of an Elevated Pipeline on Moss Covered Ground Temperature **HT 363**

Epoxy-Impregnated Windings
Transient Thermal Analysis of Epoxy-Impregnated Superconducting Windings in Linearly Ramped Fields (77-HT-77) **HT 702**

Epstein, H. I. Geometry of Scalloped Closures for Cylindrical Vessels (TB) **PVT 310**; Stresses in Ruptured Floating Roofs **PVT 291**

Equation Error Minimization
Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) **I 332**; (D) (AC) **I 339**

Equilibruim Positions
Pipes Supported at Both Ends Cannot Flutter **AM 619**

Equipment Reliability
Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) **MD 619**

Erdman, A. G. Kinematics of Jaw Growth (77-WA/Bio-15) **BE 93**

Erdogan, F. The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) **MT 2**; A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) **AM 281**

Erdol, R. A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) **AM 281**

Ericksen, J. L. On the Symmetry and Stability of Thermoelastic Solids **AM 740**

Eringen, A. C. *(author)* Elastodynamics, Vol. II, Linear Theory (BR) **AM 229**

Erosion
Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) **HT 531**
Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**
Helium Blistering in Metals (78-Mat-5) **411**
The Influence of Droplet Size on the Turbine Blading Erosion Hazard **P 561**

Errichello, R. Bending Stress in Gear Teeth Having Circular Arc Profiles—Part Analysis (77-DET-52) **MD 382**; Part 2: Experimental Investigation (77-DET-53) **MD 395**; (D) (AC) **MD 404**

Error Propagation
Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 1: Implementation **AM 595**; Part 2: Error Propagation **AM 603**

Erythrocytes
Experimental Observations on the Thermal Fragility of Erythrocytes Including the Effects of Storage and Anticoagulant **BE 223**

Eskinazi, S. Developing Region of Laminar Jets With Uniform Exit Velocity Profiles (D) **F 374**; (AC) **F 375**

Eslami, M. R. Creep Relaxation of a Beam of General Cross Section Subjected to Mechanical and Thermal Loads (TB) **MD 626**

Esmailzadeh, E. Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) **MD 500**

Estes, J. C. Techniques of Pilot-Scale Drilling Research (77-Pet-68) **PVT 188**

Etsion, I. Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) **L 279**; (D) **L 285**; (AC) **L 286**; Non-axisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) **L 379**; (D) (AC) **L 384**

Ettles, C. M. McC. The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) **MD 696**

Euler Buckling Eigensystem
An Euler Buckling Eigensystem for a Nonprismatic Strut (BN) **AM 439**

Euler's Equation
A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) **F 395**

Evan-Iwanowski, R. M. *(reviewer)* Parametererregte Schwingungen (BR) **AM 229**

Evans, R. A Novel Absorption Regeneration-Thermodynamic Heat Engine Cycle **P 566**

Evans, R. L. Boundary-Layer Development on an Axial-Flow Compressor Stator Blade (77-GT-11) **P 287**; (D) **P 292**; (AC) **P 293**

Evaporation Phenomenon
Influence of System Pressure on Microlayer Evaporation Heat Transfer **HT 49**

Evaporator Tubes
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**

Evensen, D. A. Model Verification of Mixed Dynamic Systems (77-DET-85) **MD 266**

Everhart, J. The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**

Excitation Forces
Transient Response of a Rotor in Damped Bearings (77-DET-21) **MD 257**

Excitation Mechanisms
Flow Excited Vibrations in High-Pressure Turbines (Steam Whirl) **P 219**

Excitation Spectra
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) **MD 715**

Exhaust Nozzle
Structural and Cooling Aspects of the Aden Nonaxisymmetric Exhaust Nozzle (77-GT-110) **P 308**

Expansion Coefficient
Convection in a Porous Medium Heated from Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient (77-HT-56) **HT 448**

Experimental Evaluation
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) **MD 762**

Experimental Load-Life Relation
Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) **MD 54**

Extended Surface Arrays
An Efficient Algorithm for Evaluated Arrays of Extended

Surface **HT 288**

External Axial Flow

Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) **MD 328**

External Pressure

Propagating Buckle Arrestors for Offshore Pipelines **PVT 206**

Externally Pressurized Bearings

Dynamic Characteristic of Multirecess Externally Pressurized Oil Journal Bearing **L 467**

Extravehicular Mission Design Conditions

Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAS-54) **I 383**

Extrusion

Deformation of Polymers During Hydrostatic Extrusion **PVT 400**

Theory of Linear Continuous Extrusion—Linex (77-WA/Prod-17) **I 37**

Ezzat, H. A. Eccentric Operation of the Squeeze-Film Damper (D) (AC) **L 377**

F

Face Seals

Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) **L 81**; (D) (AC) **L 90**

Phase Change in Liquid Face Seals (77-Lub-12) **L 74**; (D) (AC) **L 79**

Faeth, G. M. Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along a Vertical Isothermal Wall **HT 177**; An Investigation of the Laminar Overfire Region Along Upright Surfaces (77-HT-68) **HT 112**

Faghri, A. Wave Effects on the Transport to Falling Laminar Liquid Films **HT 143**

Failure Analysis

Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) **MT 64**

Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**

Failure Criteria

Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) **MT 25**

Failure Prediction

An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) **MD 614**

Failure Propagation

Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) **L 39**

Fall, C. Surface Ribbing of a Thin Viscous Fluid Film Emerging From a Spreader or Roller **L 462**

Falling Liquid Films

Dynamics of Developing Laminar Non-Newtonian Falling Liquid Films With Free Surface **AM 19**

Falsetti, H. L. Left Ventricular Function: Correlation With Deformation of the Myocardium (77-WA/Bio-11) **BE 99**; (D) (AC) **BE 104**

Fan Blades

Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) **MD 520**

Fan Vibration Measurement

Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) **P 655**

Farhadieh, R. Heat Transfer Phenomenology of a Hydrodynamically Unstable Melting System **HT 305**

Fan Wakes

A Theoretical Investigation on the Structure of Fan Wakes (76-WA/FE-22) **F 113**

Fasiczka, R. G. Thermal Response of Slabs Subjected to Non-Symmetric Convective Heat Transfer (78-DE-8) **MD 706**

Fast Fourier Transform (FFT)

Experimental Study of Dispersive Waves in Beam and Rod Using FFT (BN) **AM 940**

Fastener Holes

Measurement of the Elastic-Plastic Boundary Around Coldworked Fastener Holes (78-WA/APM-2) **AM 515**

Residual Strains Around Coldworked Fastener Holes **MT 310**

Fath, H. S. Influence of System Pressure on Microlayer Evaporation Heat Transfer **HT 49**

Fatigue

Cryogenic Tensile, Fatigue, and Fracture Parameters for a Solution-Annealed 18 Percent Nickel Maraging Steel **MT 189**

Design and Fatigue Testing of Integral Armored Servo Actuator Modified Trunnion (GR) **MD 204**

Design of U-Shaped Bellows Considering Low-Cycle Fatigue **PVT 382**

Dynamic Severity Criterion for Designing Against High Cycle Fatigue (77-DE-28) **MD 10**

Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) **L 39**

Influence of Selenium and Tellurium on the Fatigue of Low-Carbon Steel (TB) **MT 216**

A New Cumulative Damage Model: Part I **AM 246**; Part II **AM 251**; Part III (78-WA/APM-19) **AM 733**

Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) **L 156**; (D) (AC) **L 165**

Wear Research and Development (Op) **L 449**

Fatigue Analysis

Fracture Mechanics Approach to Fatigue Analysis in Design **MT 113**

Fatigue Crack Growth

Analysis of Closure in Fatigue Crack Growth **AM 267**

Application of the R-Curve Concept to Fatigue Crack Growth **416**

Fatigue Crack Growth of Bondline Cracks in Structural Bonded Joints **MT 39**

A Means of Assessing the Effects of Periodic Proof Testing and NDE on the Reliability of Cyclically Loaded Structures (77-PVP-44) **PVT 150**

A Parametric Study of Fatigue Crack Growth Behavior in Adhesively Bonded Metallic Structures (77-WA/Mat-5) **MT 4646**; (D) (AC) **MT 223**

A Weakest-Link Model for the Prediction of Fatigue Crack Growth Rate **MT 170**

Fatigue Crack Propagation

Fatigue Crack Propagation in 8- and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) **MT 32**

Fatigue Cracks

Growth Characteristics of a Fatigue Crack Approaching and Growing Beneath an Adhesively Bonded Doubler (77-WA/Mat-14) **MT 52**

Fatigue Damage

Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) **MD 619**

Thermal Damage and Rail Load Stresses in a 33-Inch Railroad Car Wheel (77-WA RT-2) **I 363**

Thermographic Determination of Fatigue Damage **MT 200**

Fatigue Data

Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) **MT 70**

Fatigue Deformation

Variables Influencing Degradation of SiC Abrasive Papers **L 501**

Fatigue Design Criterion

Fatigue Design Criterion for Pressure Vessel Alloys (D) **PVT 236**

Fatigue Failure

Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) **MD 520**

Fatigue Life

Fatigue Life Prediction of Complex Structures (77-DE-46) **MD 2**

Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) **I 249**

Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Fluids Ends (77-Pet-42) **PVT 39**

Measurement of the Elastic-Plastic Boundary Around Coldworked Fastener Holes (78-WA/APM-2) **AM 515**

The Practical Significance of Designing to Gear Pitting Fatigue Life Criteria (77-DET-122) **MD 48**

Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) **L 226**; (D) **L 232, 233**; (AC) **L 234**

Fatigue Limit Reduction

A Cumulative Damage Rule Based on Successive Reduction in Fatigue Limit (TB) **MT 212**

Fatigue Resistance

The Effect of Plastic Strain Followed by Aging on the Torsion Fatigue Resistance of Quenched and Tempered 4340 Steel (TB) **MT 219**

Fatigue Response

The Stress Controlled High Cycle Fatigue Response of a Metastable Beta Titanium Alloy as Influenced by Several Test Variables (TB) **MT 426**

Fatigue Strength

Fatigue Strength and Maintenance of the Wheel-Axle Assembly for the Japanese Fast Train (Shinkansen) **MT 227**

Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**

Fatigue Wear

The Wear of High Molecular Weight Polyethylene—Part I: The Wear of Isotropic Polyethylene Against Dry Stainless Steel in Unidirectional Motion **L 206**

Faulkner, L. L. Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) **MD 183**

Fault Detection Technology

Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) **MD 229**

Favrat, D. Interaction of the Rotor Blade Shock Waves in Supersonic Compressors With Upstream Stator Vanes (77-GT-93) **P 140**

Faw, R. E. Hydrodynamic Stability in Horizontal Fluid Layers with Uniform Volumetric Energy Sources (TN) **HT 729**

Fawcett, J. N. Control of Clearance Effects in Mechanisms (77-WA/DE-2) **MD 728**

Feder, E. Investigation of Squeeze Film Damper Forces Produced by Circular Centered Orbits (77-GT-30) **P 15**

Feedback Control

Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/Prod-22) **I 119**

Quasi-Time-Optimal Feedback Control of Some Fifth-Order Systems **DS 201**

A State-Constrained Approach to Vehicle-Follower Control for Short Headway Automated Transit Systems **DS 291**

Feedback Mechanism

Review—Self-Sustaining Oscillations of Flow Past Cavities **F 152**

Feingold, A. A New Look at Radiation Configuration Factors between Disks (TN) **HT 742**

Felippa, C. A. Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 1: Implementation **AM 595**; Part 2: Error Propagation **AM 603**

Felmley, C. R., Jr. Funding Sought for PVRC Gasket Test Program II, Pressure Vessel Research Notes **PVT 423**; WRC Bulletin No. 238—June 1978; WRC Bulletin 240—Aug. 1978; WRC Bulletin 241—Sept. 1978 **PVT 424**; PVRC New Items; PVRC Honors Three Members **PVT 319**; WRC Bulletin No. 235-February 1978; WRC Bulletin No. 236 - April 1978 **PVT 319**

Felske, J. D. Approximate Radiation Shape Factors between Two Spheres (TN) **HT 547**

Feng, T. T. Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) **MD 311**

Ferroelectric Ceramics

One Dimensional, Linear Dynamic Electromechanical Responses of Ferroelectric Ceramics **AM 749**

Ferroelastic Material

On the Behavior of Acceleration Waves in Elastic Dielectrics With Internal State Variables **AM 745**

Ferromagnetic Cantilevered Beam-Plate

Experimental and Theoretical Study on Magnetoelastic Buckling of a Ferromagnetic Cantilevered Beam-Plate **AM 355**

Ferromagnetic Elastic Solid

Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid With a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**

Ferziger, J. H. Calculation of Turbulent Shear Flows: Status and Ten-Year Outlook (Op) **F 3**; Numerical Modeling of Unsteady, Separated Viscous Flow (D) **F 138**; (AC) **F 139**

Fiber Beards Formation

A New Hooked Needle Device For Forming Fiber Beards For Length and Strength Measurement (77-Tex-2) **I 5**

Fiber-Reinforced Composites

A Mixture Theory for Quasi-One-Dimensional Diffusion in Fiber-Reinforced Composites **HT 128**

Fiber Size

An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) **I 1**

Fiber Stress
Stress in Glass Fibers Induced by the Draw Force (78-WA/APM-21) **AM 765**
Fiber Train
Calculation of Peak Yarn Tension During Ring-Spinning (77-Tex-6) **I 157**
Fiberizing Mechanism
Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) **I 147**
Fiberizing Process
An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) **I 153**
Fibril Ultrastructure
The Biomechanical Function of the Collagen Fibril Ultrastructure of Articular Cartilage **BE 105**
Fibrous Composites
Dynamically Induced Interfacial Stresses in Fibrous Composites (BN) **AM 442**
Fibrous Glass
Heat Transfer in a Cavity Packed with Fibrous Glass (TN) **HT 748**
Fichera, G. *(editor)* Trends in Applications of Pure Mathematics to Mechanics (BR) **AM 456**
Film Bearings
An Investigation Into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) **L 56**
The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) **MD 156**
Film Boiling
Experimental Study on the Effect of Orientation of Heating Circular Plate on Film Boiling Heat Transfer for Fluorocarbon Refrigerant R-11 **HT 824**
An Investigation of the Minimum Film Boiling Temperature on Horizontal Surfaces **HT 260**
Film Condensation
Linearized Stability Analysis of Film Condensation **HT 629**
Film Cooling
Injection Through Two Rows of Holes (77-GT-50) **P 303**
Adiabatic Wall Temperature and Heat Transfer Downstream of Injection Through Two Rows of Holes (77-GT-50) **P 303**
Film Cooling of a Gas Turbine Blade **P 476**
Film Damper Forces
Investigation of Squeeze Film Damper Forces Produced by Circular Centered Orbits (77-GT-30) **P 15**
Film Dampers
Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) **MD 139**
Film Flow
Wave Motion in Multilayered Liquid Films **AM 25**
Film Heating
Wave Effects on the Transport to Falling Laminar Liquid Films **HT 143**
Film Temperatures
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) **L 261**; (D) **L 269**; (AC) **L 270**
Film Thickness
An Approximate Equation for Predicting the Isothermal and Nonisothermal Starved Rolling Traction in an E.H.L. Line Contact **L 472**
Asymptotic Methods for a General Finite Width Gas Slider Bearing **L 254**
The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact—Part I: Fully Flooded Conditions **L 346**; Part II: Starved Conditions **L 353**
Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) **L 304**; (D) (AC) **L 307**
Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) **L 404**; (D) **L 416**; (AC) **L 417**
Filmley, C. R., Jr. WRC Bulletin 230—September 1977; NRC Bulletin 231—October 1977; WRC Bulletin 233—December 1977 **PVT 131**
Filter Performance
A Technique for Compensating the Filter Performance by a Fictitious Noise **DS 154**
Filtration
Consolidation in Compressible Mixtures **AM 727**
Fin Arrays
Forced Convection Heat Transfer from a Shrouded Fin Array with and without Tip Clearance **HT 572**
Finch, R. D. Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) **I 459**; (D) (AC) **I 465**
Findlay, J. A. Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (D) (AC) **L 384**
Findley, W. N. Concerning a Creep Surface Derived from a Multiple Integral Representation for 304 Stainless Steel Under Combined Tension and Torsion (78-WA/APM-11) **AM 773**; Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-WA/APM-3) **AM 507**
Finite Boundaries
Effect of Inhomogeneities and Finite Boundaries on Temperature Distributions in a Perfused Medium, With Application to Tumors **BE 235**
Finite Conductivity
Analysis of the Effects of Finite Conductivity in the Single Blow Heat Storage Unit (TN) **HT 740**
Finite-Difference Equations
Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**
Finite-Difference Form
The Velocity Characteristics of Ventilated Rooms **F 291**
Finite-Difference Method
Finite Element and Finite Difference Methods in Engineering (77-DE-45) **MD 188**
Laminar Mixed-Mode, Forced and Free, Diffusion Flames **HT 253**
Natural Frequencies of Clamped Orthotropic Rectangular Plates With Varying Thickness (78-WA/APM-9) **AM 871**
Prediction of Incompressible Turbulent Separating Flow (78-WA/FE-4) **F 427**
Transient Motion of an Elastic Shell of Revolution in an Acoustic Medium **AM 149**
Finite-Difference Model
A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**
Finite-Difference Solution
Finite-Difference Solution for the Uniaxial Endochronic Viscoplastic Wave Problem (BN) **AM 221**
Finite-Difference Technique
Second Flow in Rotating Bends **P 553**
Finite-Dimensional Modeling
Approximation of Fundamental Equations for Finite-Dimensional Modeling of Thermo-Fluid Processes (TB) **P 722**
Finite Distortion
Further Investigation of a New Hardening Law in Crystal Plasticity **AM 500**
Finite Elasticity
Finite Elasticity Solutions Using Hybrid Finite Elements Based on a Complementary Energy Principle (78-WA/APM-1) **AM 539**
Finite-Element Analysis
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) **MD 374**
Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) **P 356**
Finite Element Analysis in Fluid Dynamics (BR) **DS 347**
A Finite Element Thermal Analysis Procedure for Several Temperature-Dependent Parameters (TN) **HT 551**
J-Integral Approach to Fracture of Rotating Disk **MT 128**
Stiffness Coefficients and Allowable Loads for Nozzles in Flat-Bottom Storage Tanks (77-PVP-19) **PVT 389**
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) **I 273**
Thermal Damage and Rail Load Stresses in a 33-Inch Railroad Car Wheel (77-WA/RT-2) **I 363**
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) **PVT 134**
Finite-Element Calculations
Further Developments in Anisotropic Plasticity **MT 294**
Finite-Element Computer Codes
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**
Finite-Element Idealization
Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates **AM 521**
Finite-Element Methods
Analysis of Sheet Metal Stamping by a Finite-Element Method **AM 73**
Axisymmetric Bending of Annular Plates (78-WA/APM-27) **AM 834**
Deformations and Stresses in Soft Body Tissues of a Sitting Person **BE 79**
Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 660**
Experimental and Theoretical Study on Magnetoelastic Buckling of a Ferromagnetic Cantilevered Beam-Plate **AM 355**
Finite Element and Finite Difference Methods in Engineering (77-DE-45) **MD 188**
The Finite Element Method for Elliptic Problems (BR) **AM 968**
Finite Element Methods in Engineering (BR) **MD 591**
Finite-Element Methods for Nonlinear Elastodynamics Which Conserve Energy **AM 366**
A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) **F 31**
Load Distribution in Timing Belts (77-DET-100) **MD 208**
Solution of Navier's Equation in Cylindrical Curvilinear Coordinates **AM 812**
Thermal Stresses in a Submerged-Arc Welded Joint Considering Phase Transformations **MT 356**
On Uniform Convergence of the Finite-Element Method (BN) **AM 210**
Vibration Analysis of Circular Plates With Eccentric Hole (BN) **AM 215**
Finite-Element Model
A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**
Finite-Element Plasticity
A Slip Model for Finite-Element Plasticity **AM 527**
Finite-Element Solutions
The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transients **HT 120**
Natural Convection In Compound Parabolic Concentrators—A Finite-Element Solution **HT 199**
Quarter Elliptical Cracks Emanating From Holes in Plates **MT 144**
Finite-Element Technique
A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) **I 31**
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) **MD 637**
Finite Elements
Implicit-Explicit Finite Elements in Transient Analysis: Implementation and Numerical Examples **AM 375**; Stability Theory **AM 371**
The Mathematics of Finite Elements and Applications II (BR) **AM 232**
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) **MD 183**
Finite Extension
Finite Extension of an Elastic Strand With a Central Core (78-WA/APM-7) **AM 852**
Finite Plate
Influence of Rotatory Inertia on Steady-State Crack Propagation in a Finite Plate Subjected to Out-of-Plane Bending **AM 130**
Finite Resistance
On the Behavior of Acceleration Waves in Elastic Dielectrics With Internal State Variables **AM 745**
One Dimensional, Linear Dynamic Electromechanical Responses of Ferroelectric Ceramics **AM 749**
Finite Ring Method
Stress Analysis of Pipe Bends by Ring Elements **PVT 112**
Finite Rotations
Successive Finite Rotations (BN) **AM 945**
Finite Span
A Partially Cavitating Hydrofoil of Finite Span **F 353**
Finite Strip
Sudden Appearance of a Crack in a Stretched Finite Strip **AM 277**
Finite-Time Settling Control
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) **DS 50**
Finite-Time Snap-Through
The Effect of Spatial Distribution on Dynamic Snap-Through **AM 612**
Finite-Wall Conductance
On the Influence of Finite Wall Conductance and Inertia Effects of Hydrostatic Thrust Bearing **L 271**

Finite-Width Bearing Films
Flow in Finite-Width, Thrust Bearings Including Inertial Effects I—Laminar Flow **L 330**; Part II—Turbulent Flow **L 339**
Finkin, E. F. Review of Wear Problems in the Computer Industry (D) **L 195**; (AC) **L 198**
Finned Surfaces
Performance Ranking of Plate-Fin Heat Exchanger Surfaces (76-WA/HT-31) **HT 514**
Finned Tubes
Augmentation of Horizontal In-Tube Condensation by Means of Twisted-Tape Inserts and Internally Finned Tubes **HT 17**
Finnie, I. Editorial **MT 225**
Fins
An Efficient Algorithm for Evaluating Arrays of Extended Surface **HT 288**
Fire Resistant Fluids
Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) **L 304**; (D) (AC) **L 307**
Fires
Radiation Augmented Fires within Enclosures (TN) **HT 544**
First-Order Pump Surge
First-Order Pump Surge Behavior (77-WA/FE-12) **F 459**
First-Passage Failure
An Experimental Study of First-Passage Failure of a Randomly Excited Structure (78-WA/APM-14) **AM 917**
First-Passage Time
First-Passage Time for Oscillators With Nonlinear Damping **AM 175**
Fish, R. Steering Controller Design For Automated Guideway Transit Vehicles **DS 1**
Fisher, E. A. Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) **PVT 200**
Five-Bar Linkage
Model Formulation of Complex Mechanisms With Multiple Inputs: Part 1—Geometry (77-WA/DE-9) **MD 747**
Fixed Points
A Note on the Stability of a Gyrostat With a Fixed Point (BN) **AM 676**
Fixed Rotation Axis
A Method for Locating an Optimal "Fixed" Axis of Rotation for the Human Knee Joint **BE 187**
Fixed Steering Control
Application of The Parameter Plane Method to The Analysis of Directional Stability of Tractor-Semitrailers **DS 9**
Flame Propagation
A Model for Flame Propagation in Low Volatile Coal Dust-Air Mixtures (77-HT-18) **HT 105**
Flame Stabilizer
Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**
Flame Structure
Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) **I 210**
Flanged Inner Ring
The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearing (77-Lub-8) **L 18**
Flanged Windows
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) **I 249**
Flanges
The Background of ASME Code Case 1828: A Simplified Method of Analyzing Part B Flanges **PVT 215**
Flank Wear Model
Flank Wear Model of Cutting Tools Using Control Theory (77-WA/Prod-20) **I 103**
Flashing
An Isentropic Streamtube Model for Flashing Two-Phase Vapor-Liquid Flow **HT 595**
Flat Bar
Stress-Concentration Factors for a Countersunk Hole in a Flat Bar in Tension and Transverse Bending (DDM) **AM 929**
Flat-Bottom Storage Tanks
Stiffness Coefficients and Allowable Loads for Nozzles in Flat-Bottom Storage Tanks (77-PVP-19) **PVT 389**
Flat-Plate Hydrofoil
Leading-Edge Correction for the Supercavitating Flat-Plate Hydrofoil (77-FE-21) **F 276**; (D) (AC) **F 280**
Flat Plates
Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**
Free Convection across Inclined Air Layers with One Surface V-Corrugated **HT 410**
Laminar Shear Layer Due to a Thin Flat Plate Oscillating With Zero Mean Velocity (78-WA/FE-16) **F 367**
A Partially Cavitating Hydrofoil of Finite Span **F 353**
Stress Intensity Factors for Reactor Vessel Nozzle Cracks **PVT 141**
Surface Ribbing of a Thin Viscous Fluid Film Emerging From a Spreader or Roller **L 462**
Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) **MD 528**
Turbulence Measurements in a Separated and Reattached Flow Over a Blunt Flat Plate **F 224**
Flat Sector Pad
Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) **L 279**; (D) **L 285**; (AC) **L 286**
Flaw Detection
Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) **I 459**; (D) (AC) **I 466**
High Frequency Ultrasonic Evaluation of Ceramics for Gas Turbines **P 549**
Flaw Evaluation
Status ASME XI Appendix A—Evaluation of Flaw Indications **PVT 417**
Fleeter, S. Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) **P 664**; (D) (AC) **P 675**
Fletcher, E. J. Measurement of Roller Speed in a Cylindrical Roller Bearing Using a Laser Anemometer **L 486**
Flexed Plates
Experimental Solution of Flexed Plates by the Method of Caustics (Er) **AM 965**
Flexible Bearing Pedestals
Influence of Unequal Pedestal Stiffness on the Instability Regions of a Rotating Asymmetric Shaft **AM 400**
Flexible Bladed Disks
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) **P 647**
Flexible Cylinders
An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**
Stability of a Cluster of Flexible Cylinders in Bounded Axial Flow (AC) **AM 703**; (D) **AM 455**
Flexible Damped Satellites
A Comparative Study of Liapunov Stability Analyses of Flexible Damped Satellites **AM 657**
Flexible Damped Support
A Study of the Stability of an Externally-Pressurized Gas-Lubricated Thrust Bearing With a Flexible Damped Support **L 364**
Flexible Rotors
Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) **MD 251**
A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) **MD 165**
Steady-State Unbalance Response of a Three-Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) **MD 563**
Flexible Spinning Disk
Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**
Flexural Fatigue
Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) **L 39**
Flexural Rigidity
On the Flexural Rigidity of a Micropolar Elastic Circular Cylinder (BN) **AM 429**
Flexural Vibrations
Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-88) **MD 274**
A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**
Nonlinear Flexural Vibration of an Elastic Ring (BN) **AM 428**
Floating Roofs
Stresses in Ruptured Floating Roofs **PVT 291**
Floating Sprays
Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) **F 65**
Floating Vessel
A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) **PVT 91**
Flom, D. G. Diamond Compact Cutter Studies for Geothermal Bit Design **PVT 406**
Flow
The Acceleration of Thin Cylindrical Bodies in a Viscous Fluid **AM 1**
Air Model Tests of Labyrinth Seal Forces on a Whirling Rotor **P 533**
An Analysis of High Temperature Metal Creep—Part II: A Constitutive Formulation and Verification **MT 371**
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) **L 287**; (D) **L 294**; (AC) **L 295**
An Analysis of the Three-Way Underlapped Hydraulic Spool Servovalve **DS 117**
Analytic Derivation of Static Pressure Distribution in Fully Developed Helical Flows **F 201**
Analytical Solutions of Viscous Flow in Constricted or Widened Tubes **AM 241**
Approximate Numerical Solutions for Two-Dimensional Potential Flow Problems (TB) **F 122**
Approximate Solution for Pulsatile Laminar Flow in a Circular Rigid Tube (TB) **F 131**
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) **P 618**
Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**
A Bond Graph Modeling Philosophy for Thermofluid Systems **DS 70**
Boundary Layer Calculation for Analysis and Design **F 232**
Boundary-Layer Development on an Axial-Flow Compressor Stator Blade (77-GT-11) **P 287**; (D) **P 292**; (AC) **P 293**
Calculation of Turbulent Shear Flows: Status and Ten-Year Outlook (Op) **F 3**
Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**
A Comparison of Deformation and Flow Theories Under Dynamic Loading Conditions (BN) **AM 431**
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**
The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) **P 452**
Conditions for a Pipe to Run Full When Discharging Liquid Into a Space Filled With Gas (D) (AC) **F 136**
Constrained Flow Past Cavitating Bluff Bodies (D) **F 254**; (AC) **F 255**
Convection in a Porous Medium Heated from Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient (77-HT-56) **HT 448**
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D) (A) **P 591**
Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) **P 497**
Determination of Void Fraction, Incipient Point of Boiling, and Initial Point of Net Vapor Generation in Sodium-Heated Helically Coiled Steam Generator Tubes **HT 268**
The Dynamics of Thin Liquid Films in Rotating Tubes: Approximate Analysis **F 187**
Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**
Effect of Flow Direction on Calibration of Hot-Film Anemometers at Low Velocities (TN) **HT 381**
The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**
The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Flow in Compressor Cascades (77-WA/FE-5) **F 22**
Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**
The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow **F 210**; (D) **F 377-380**; (AC) **F 380**
Elastic and Elastic-Plastic Buckling of Internally Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) **PVT 335**
Exact and Approximate Equations for Real-Fluid Isentropic Flow **F 413**
An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**
On the Exact Solution for the Two-Sphere Problem in Axisymmetrical Potential Flow **AM 463**
An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition from Laminar Forced Convection to Turbulent Free Convection over a Horizontal Isothermally Heated Plate **HT 429**
Experimental Study of a Solid-Gas Issuing Into a Transverse Stream (78-WA/FE-2) **F 333**; (D) **F 338**; (AC) **F 339**
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P 676**; (D) **P 688-689**; (AC) **P 689**

An Experimental and Theoretical Study of Heat Transfer in Vertical Tube Flows **HT 86**
Experiments on the Onset of Longitudinal Vortices in Horizontal Blasius Flow Heated from Below **HT 71**
A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**
Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) **L 47**
Flow Excited Vibrations in High-Pressure Turbines (Steam Whirl) **P 219**
Flow in Finite-Width, Thrust Bearings Including Inertial Effects: Part I—Laminar Flow **L 330**; Part II—Turbulent Flow **L 339**
Flow and Heat Transfer in Convectively Cooled Underground Electric Cable Systems: Part 1—Velocity Distributions and Pressure Drop Correlations (76-WA/HT-45) **HT 36**; Part 2—Temperature Distributions and Heat Transfer Correlations (76-WA/HT-42) **HT 36**
Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**
Fluid Dynamic Excitation of Centrifugal Compressor Rotor Vibrations (77-FE-22) **F 73**
Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Rock Masses **PVT 277**
Forced Convection Heat Transfer from Nonisothermal Thin Needles **HT 358**
The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments **PVT 297**
Free-Forced Convection in the Entry Region of a Heated Straight Pipe **HT 212**
Frictional Moment of Flow Between Two Concentric Spheres, One of Which Rotates **F 97**; (D) **F 236**; (AC) **F 247**
Further Developments in Anisotropic Plasticity **MT 294**
Gas Flow Through Cracks **F 453**
Granular Material Flow in Two-Dimensional Hoppers **AM 43**
On Gyrobondgraphs and Their Uses **DS 76**
Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) **HT 352**
Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (TN) **HT 539**
Heat Transfer in Turbulent Pipe Flow for Liquids Having a Temperature-Dependent Viscosity **HT 224**
On the Influence of Finite Wall Conductance and Inertia Effects of Hydrostatic Thrust Bearing **L 271**
Influence of the Side Walls on the Turbulent Center-Plane Boundary-Layer in a Square Duct **F 91**
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) **MD 328**
Interacting Turbulent Boundary Layer over a Wavy Wall **HT 678**
Interaction of the Rotor Blade Shock Waves in Supersonic Compressors With Upstream Stator Vanes (77-GT-93) **P 140**
Interferometric Investigation of Turbulently Fluctuating Temperature in an LMFBR Outlet Plenum Geometry (76-WA/HT-82) **HT 334**
Inviscid Rotational Flow Through Sprays (BN) **AM 934**
An Isentropic Streamtube Model for Flashing Two-Phase Vapor-Liquid Flow **HT 595**
Laminar Boundary Layer Transfer over Rotating Bodies in Forced Flow **HT 496**
Laminar Mixed-Mode, Forced and Free, Diffusion Flames **HT 253**
Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**
Laminar-Turbulent Flow in a Spherical Annulus **F 281**
Leading-Edge Correction for the Supercavitating Flat-Plate Hydrofoil (77-FE-21) **F 276**; (D) (AC) **F 280**
Leading Edge Effects in Transient Natural Convection Flow Adjacent to a Vertical Surface (TN) **HT 731**
Limit Analysis of Hollow Disk Forging—Part 1: Upper Bound (77-WA/Prod-2) (D) (AC) **I 345**
Liquid Jet Impingement Normal to a Disk in Zero Gravity (78-WA/FE-1) **F 204**
Loss Characteristics of Orifices and Nozzles **F 299**
Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy **P 525**
Measurements of the Performance of an Turbine Stage at Positive and Negative Mass Flow and Rotational Speed (Four-Quadrant Characteristics) (77-GT-14) **P 22**
Measurement of Roller Speed in a Cylindrical Roller Bearing Using a Laser Anemometer **L 486**
Measurements of Transition Boiling Data for Water Under Forced Convective Conditions (TN) **HT 382**
A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) (A) **F 395**
MHD Flows and Turbulence (BR) **AM 232**
Mixing Process Induced by the Vorticity Associated With the Penetration of a Jet into a Cross Flow **P 485**
Modified Governing Equations for Unsteady Compressible Flow in Ducts **AM 723**
A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) **P 698**
Nonaxisymmetric Flow through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**
Nonaxisymmetric Flow Through Annular Actuator Disks: The View From the Rotor (Ad) **P 615**
Nonparallel Effects on the Stability of Jet Flows (78-WA/APM-16) **AM 717**
Nonsimilar Laminar Free Convection Flow Along a Nonisothermal Vertical Plate (TN) **HT 163**
A Note on the Low Speed Flow Up a Step (TB) **F 127**
A Novel Physico-Computational Model for Quasi One-Dimensional Gas-Particle Flows (76-WA/FE-36) **F 343**
Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**
A Numerical Method For Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) **I 413**
Numerical Modelling of Unsteady, Separated Viscous Flow (D) **F 138**; (AC) **F 139**
The Numerical Prediction of the Turbulent Flow and Heat Transfer in the Entrance Region of a Parallel Plate Duct (D) **HT 561**; (AC) **HT 562**
The Numerical Prediction of Viscous Flow and Heat Transfer in Tube Banks **HT 585**
A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**
Partial Spectral Expansions for Problems in Thermal Convection **HT 435**
A Partially Cavitating Hydrofoil of Finite Span **F 353**
Particle Deposition in a Charged Aerosol Flowing Through a Conducting Tube **F 449**
Performance Ranking of Plate-Fin Heat Exchanger Surfaces (76-WA/HT-31) **HT 514**
Prediction of Compressor Performance in Rotating Stall (77-GT-10) **P 1**; (D) **P 13**; (AC) **P 14**
Prediction of Incompressible Turbulent Separating Flow (78-WA/FE-4) **F 427**
Prediction of the Three-Dimensional Velocity Field of a Deflected Turbulent Jet (D) **F 249**; (AC) **F 250**
A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages **F 180**; (D) (AC) **F 376**
Pseudo Bond Graphs for Thermal Energy Transport **DS 165**
Quasi Two-Dimensional Analysis of a Flow Through a Centrifugal Pump Impeller (D) (AC) **F 248**
Red Cell Motion and Deformation in the Microcirculation **BE 139**
Review—Self-Sustaining Oscillations of Flow Past Cavities **F 152**
Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow **F 215**; (D) (AC) **F 377**
Second Floor in Rotating Bends **P 553**
The Second Law of Thermodynamics and Cyclic Processes **AM 487**
A Simple Integral Approach to Turbulent Thermal Boundary Layer Flow (TN) **HT 744**
Simultaneous Measurements of Velocity and Temperature in Nonisothermal Flows **HT 340**
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**
Solutions of Laminar Jet Flow Problems for Non-Newtonian Power-Law Fluids **F 363**; (D) (AC) **F 500**
Some Effects of Mechanically-Produced Unsteady Boundary Layer Flows on Convective Heat Transfer Augmentation **HT 25**
Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**
Stability of a Cluster of Flexible Cylinders in Bounded Axial Flow (D) **AM 455**; (AC) **AM 703**
Steady Flow in Tubes of Slowly Varying Cross Section **AM 475**
A Surface Rejuvenation Model for Turbulent Heat Transfer in Annular Flow With High Prandtl Numbers **HT 92**
Sufficient Conditions for Stability of Rotating Flows **AM 7**
Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**
Tailoring the Waveform of a Periodic Flow With a Programmable Damper **F 287**
On the Theories of Sheet Metal Necking and Forming Limits **MT 303**
Turbulence Characteristics of the Flow Downstream of a Symmetric, Plane Sudden Expansion **F 308**
Turbulence Measurements in a Separated and Reattached Flow Over a Blunt Flat Plate **F 224**
A Turbulent Energy Dissipation Model for Flows With Drag Reduction **F 107**
Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**
Variable Viscosity Effect on the Laminar Water Boundary Layer on Heated Cones **AM 481**
The Velocity Characteristics of Ventilated Rooms **F 291**
Vertical Channel Parallel Flow Modification Associated With Density Extremum (TB) **F 128**
Vortex Sheet Analysis of the Giromill **F 340**
On Vortex Wind Power (77-WA/FE-20) **F 79**

Flow Characteristics
Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) **L 47**

Flow Coefficient
Predetermination of the Relative Error on the Flow Coefficient of Orifice Meters in Nonstandard Approach Conditions **F 60**

Flow Distribution
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) **P 444**

Flow Engine Element
The Flapwing, A Unique Fluid Machine Element **F 237**

Flow Field Coupling
Flow Field Coupling Between Compression System Components in Asymmetric Flow (77-GT-17) **P 66**

Flow Fields
Developing Region of Laminar Jets With Uniform Exit Velocity Profiles **F 55**
Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**

Flow-Induced Motions
An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**

Flow Instability
First-Order Pump Surge Behavior (77-WA/FE-12) **F 459**

Flow Line Optimization
Application of Goal Programming to Machinability Data Optimization (77-DET-19) **MD 286**

Flow Measurements
Influence of Volute Surface Roughness on the Performance of a Centrifugal Pump **F 473**
Throughflow Calculations for Transonic Axial Flow Turbines **P 212**

Flow Models
An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) **L 12**
Choked Expansion of Subcooled Water and the I.H.E. Flow Model **HT 275**
A Flow Model for Centrifugal Compressor Rotors (77-GT-62) **P 148**

Flow Nonuniformity
Thermal Performance Deterioration in Crossflow Heat Exchanger due to the Flow Nonuniformity **HT 580**

Flow Nozzles
Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) **F 265**; (D) **F 274**; (AC) **F 275**

Flow Patterns
Deformation of Polymers During Hydrostatic Extrusion **PVT 400**
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) **L 167**; (D) (AC) **L 174**

Flow Potential Function
A Flow Potential Function for Hyperbolic Sine Creep (BN) **AM 679**

Flow Regimes
On the Flow Regimes of Downhole Flow of a Gas-Particle Mixture **F 410**

Flow Separation
A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) **F 439**

Flow Strength
A Comparative Study of Various Empirical Relations Applicable in Hot Strip Rolling (TB) **MT 430**
Flow Stress
Experiments on Strain Rate History and Temperature Effects During the Plastic Deformation of Close-Packed Metals **AM 60**
Strain Rate Effects in Low Speed Two-Body Abrasion **L 181**
Flow Study
A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) **F 31**; (D) **F 250**; (AC) **F 252**
Flow Transition
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) **L 261**; (D) **L 269**; (AC) **L 270**
Flow-Type Manufacturing
Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/Prod-32) **I 468**
Flow Variation
Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) **MD 347**
Flow Vectors
The Visous Sublayer in a Streamwise Corner (BN) **AM 219**
Flower, R. J. Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) **P 576**
Floyd, J. K. Control of Steam Venting Noise in Power Plants (77-IPC-Pwr-1) **P 369**
Fluid Bed Boilers
Prediction of Temperature Profiles in Fluid Bed Boilers (76-HT-66) **HT 508**
Fluid-Coupled Concentric Cylinders
Normal Model Solution of Fluid-Coupled Concentric Cylindrical Vessels (78-PVP-37) **PVT 350**
Fluid Dynamic Excitation
Fluid Dynamic Excitation of Centrifugal Compressor Rotor Vibrations (77-FE-22) **F 73**
Fluid Dynamics
Analytical Dynamics of Discrete Systems **AM 233**
The Component Element Method in Dynamics **AM 235**
Construction of Integration Formulas for Initial Value Problems **AM 233**
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D) (AC) **P 591**
Dynamics of Systems of Rigid Bodies **AM 458**
Elastodynamic Crack Problems **AM 230**
Elastodynamics, Vol. II, Linear Theory **AM 229**
Elasto-Hydrodynamic Lubrication **L 447**
Finite Element Analysis in Fluid Dynamics (BR) **DS 347**
Fluid Dynamics of the Circular Porous Slider (Er) **AM 236**
Fluid Dynamics of the Elliptic Porous Slider (BN) **AM 435**
Fluid Dynamics of the Long Porous Slider (Er) **AM 236**
The Hopf Bifurcation and Its Application **AM 234**
Impact Wear of Materials **AM 458**
An Introduction to the Theory of Linear Systems **DS 162**
Marine Hydrodynamics **AM 457**
The Mathematics of Finite Elements and Applications III **AM 232**
Mechanik der Polymer Werkstoffe **AM 456**
MHD Flows and Turbulence **AM 232**
Navier Stokes Equations: Theory and Numerical Analysis **AM 456**
Nonlinear Systems Analysis **DS 161**
Numerical Methods in Fluid Dynamics (BR) **DS 161**; (BR) **AM 704**
Ordinary and Delay Differential Equations (BR) **AM 230**
Parametererregte Schwingungen **AM 229**
Parameterschatzverfahren Zur Systemidentifikation (BR) **DS 101**
Point Mapping Stability (BR) **AM 456**
Review of Fundamental Principles of Heat Transfer **AM 235**
Strength and Structure of Solid Materials **AM 231**
The Theory of Approximate Methods and Their Application to the Numerical Solution of Singular Integral Equations **AM 230**
Theory and Practice of Solid Mechanics **AM 229**
Trends in Applications of Pure Mathematics to Mechanics **AM 456**
Tribology, A Systems Approach to the Science and Technology of Friction, Lubrication and Wear **MT 336**
Turbulence in Liquids **AM 232**
Viskoelastizität und Plastizität. Thermomechanisch Konsistente Materialgleichungen (Viscoelasticity and Plasticity. Thermomechanically Consistent Constitutive Equations). **AM 457**
Fluid Ends
Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Fluid Ends (77-Pet-42) **PVT 39**
Fluid Films
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) **L 369**; (A) (AC) **L 377**
Surface Ribbing of a Thin Viscous Fluid Film Emerging From a Spreader or Roller **L 462**
Fluid-Film Bearings
Some Experiments of Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) **MD 147**
Fluid Flow
A Bond Graph Modeling Philosophy for Thermofluid Systems **DS 70**
A Correlation for Laminar Hydrodynamic Entry Length Solutions for Circular and Noncircular Ducts **F 177**
Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Rock Masses **PVT 277**
Fluid Layers
Correlation Equations for Turbulent Thermal Convection in a Horizontal Fluid Layer Heated Internally and from Below **HT 416**
Hydrodynamic Stability in Horizontal Fluid Layers with Uniform Volumetric Energy (TN) **HT 729**
Fluid Lubrication
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) **L 287**; (D) **L 294**; (AC) **L 295**
Fluid Mechanics
Liquid Jet Impingement Normal to a Disk in Zero Gravity (78-WA/FE-1) **F 204**
Fluid Motion
Peristaltic Pumping of a Newtonian Fluid With Particles Suspended in It at Low Reynolds Number Under Long Wavelength Approximations **AM 32**
Steady Flow in Tubes of Slowly Varying Cross Section **AM 475**
Fluid Power Control
A Brief History of Electrohydraulic Servomechanisms **DS 110**
Fluid Pressure
Consolidation in Compressible Mixtures **AM 727**
A Novel Pressure Transducer Using Mechanical Resonance **DS 83**
Fluid Reservoirs
Laminar Free Convection Heat Transfer through Horizontal Duct Connecting Two Fluid Reservoirs at Different Temperatures (TN) **HT 725**
Fluid Shell Boundary Conditions
Transient Motion of an Elastic Shell of Revolution in an Acoustic Medium **AM 149**
Fluid Temperature
Simultaneous Measurements of Velocity and Temperature in Nonisothermal Flows **HT 340**
Fluid Viscoelasticity
An Investigation Into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) **L 56**
Fluidelastic Vibration
Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) **MD 540**
Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) **MD 347**
Fluids
On the Analogy Between the Calorimeter Problem and Some Granulate-Fluid Exchange Processes **HT 319**
The Behavior of Gas Bubbles in the Casson Fluid **AM 37**
A Design Method on Propeller Current Meters (75-WA/FM-5) **F 83**
Oscillation Modes in Superposed Fluids (BN) **AM 204**
Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) **L 304**; (D) (AC) **L 307**
Heat Transfer by Natural Convection Between a Vertical Surface and a Stability Stratified Fluid (TN) **HT 378**
An Investigation Into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) **L 56**
Laminar-Turbulent Flow in a Spherical Annulus **F 281**
Response of a Rigid-Plastic Circular Plate in Contract With Newtonian Fluid (BN) **AM 199**
Rheological Equations for Synovial Fluids **BE 169**
Solutions of Laminar Jet Flow Problems for Non-Newtonian Power-Law Fluids **F 363**; (D) (AC) **F 500**
The Squeezing of a Fluid Between Two Plates (ER) **AM 706**
The Temperature Dependence of Surface Tension of Pure Fluids **HT 324**
Thermocline Degradation in a Packed Bed Thermal Storage Tank (TN) **HT 371**
Time-Dependent Double-Diffusive Instability in a Density-Stratified Fluid along a Heated Inclined Wall (78-HT-43) **HT 653**
Transient Behavior of a Solid Sensible Heat Thermal Storage Exchanger **HT 148**
Vibration of a Group of Circular Cylinders in a Confined Fluid (D) (AC) **AM 455**
Fluctuating Pressures
Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**
Fluctuating Temperature Measurements
Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) **I 210**
Fluctuating Temperatures
Interferometric Investigation of Turbulently Fluctuating Temperature in an LMFBR Outlet Plenum Geometry (76-WA/HT-82) **HT 334**
Fluorocarbon Refrigerant R-11
Experimental Study on the Effect of Orientation of Heating Circular Plate on Film Boiling Heat Transfer for Fluorocarbon Refrigerant R-11 **HT 624**
Flutter
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) **P 655**
Torsional Flutter in Stalled Cascade **P 317**
Flutter Instability
Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) **MD 520**
Flutter Motions
Pipes Supported at Both Ends Cannot Flutter **AM 619**
Flywheel Hybrid Transmissions
Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) **DS 24**
Flywheel Storage
Optimal Control of On-Board and Station Flywheel Storage for Rail Transit Systems **DS 284**
Fog Plumes
An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**
Follower Forces
Divergence Buckling of a Simple Frame, Subject to a Follower Force (BN) **AM 426**
Stability of a Rectangular Simply Supported Plate Subjected to Nonincreasing Tangential Follower Forces (BN) **AM 223**
Fonck, R. M. Datum Line Fixation for Linear Porportional Weirs (BN) **AM 441**
Foord, C. A. Isothermal Elastohydrodynamic Lubrication of Point Contacts: Part IV-Starvation Results (D) (AC) **L 142**; Measurement of Fan Vibration Using Double Pulse Holography (78-GT-11) **P 655**
Force Analysis
Graphical Interpretation of the Solution to the Redundant Problem in Biomechanics **BE 159**
Force Coefficient Value
The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments **PVT 297**
Force Computations
The Acceleration of Thin Cylindrical Bodies in a Viscous Fluid **AM 1**
Force Measurement
Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy **P 525**
Force Variation
Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) **I 181**
Forced Convection
Forced Convection Heat Transfer from a Shrouded Fin Array with and without Tip Clearance **HT 572**
Heat Transfer in Turbulent Pipe Flow for Liquids Having a Temperature-Dependent Viscosity **HT 224**
Forced Convection Heat Transfer
Forced Convection Heat Transfer from Nonisothermal Thin Needles **HT 358**
Forced Convective Conditions
Measurements of Transition Boiling Data for Water Under Forced Convective Conditions (TN) **HT 382**
Forced Convective Heating
Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) **HT 531**
Forced Flow
Laminar Boundary Layer Transfer over Rotating Bodies in Forced Flow **HT 496**

Forced Oscillations
Canine Pulmonary Input Impedance Measured by Transient Forced Oscillations **BE 67**
Forced Vibrations
Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) **MD 480**
Forced Vibration of Continuous System With Nonlinear Boundary Conditions (77-DET-80) **MD 487**
Forcing Frequencies
Wave Propagation and Instability in a Circular Semi-Infinite Liquid Jet Harmonically Forced at the Nozzle **AM 469**
Ford, R. A. J. Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) **P 655**
Forging
Disk and Strip Forging with Side-Surface Foldover—Part 1: Velocity Field and Upper-Bound Analysis (77-WA/Prod-36) **I 421**; Part 2: Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) **I 428**
Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) **MT 338**
Limit Analysis of Hollow Disk Forging: Part 1: Upper Bound (77-WA/Prod-2) **I 340**; (D) (AC) **I 345**; Part 2: Lower Bound (77-WA/Prod-3) **I 347**; (D) (AC) **I 345**
A Numerical Method For Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) **I 413**
Forming Parameters
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/Prod-1) **I 113**
Forrestal, M. J. Elastic-Plastic Response of 304 Stainless Steel Beams to Impulse Loads (BN) **AM 685**
Fossum, A. F. Influence of Rotatory Inertia on Steady-State Crack Propagation in a Finite Plate Subjected to Out-of-Plane Bending **AM 130**
Foster, L. W. One Stage and Two Stage Vibration Isolators as Applied to High Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) **MD 33**
Foster-Pegg, R. W. Steam Bottoming Plants for Combined Cycles **P 203**
Four-Bar Function Generators
A General Theory for Synthesizing Crank-Type Four-Bar Function Generators With Transmission Angle Control **AM 415**
Four-Bar Linkages
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) **MD 762**
Control of Clearance Effects in Mechanisms (77-WA/DE-2) **MD 728**
Mechanical Error Analysis of Spatial Linkages (77-WA/-DE-8) **MD 732**
Four-Quadrant Characteristics
Measurements of the Performance of an Turbine Stage at Positive and Negative Mass Flow and Rotational Speed (Four-Quadrant Characteristics) (77-GT-14) **P 22**
Fowler, J. R. Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) **PVT 200**
Fox, G. R. Performance and Economics of Advanced Energy Conversion Systems for Coal and Coal-Derived Fuels **P 252**
Fraction Coefficient
The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) **L 219**; (D) **L 224**; (AC) **L 225**
Fracture
An Assessment of Overburden Stability in the In-Situ Gasification of Texas Lignite **PVT 285**
Contrasting Fracture Models For Granite Under Dynamic Loading **MT 287**
Cryogenic Tensile, Fatigue, and Fracture Parameters for a Solution-Annealed 18 Percent Nickel Maraging Steel **MT 189**
The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) **MT 2**
Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Rock Masses **PVT 277**
Fracture Under Combined Loads by Maximum-Energy-Release-Rate Criterion **AM 553**
On the Gasdynamics of Running Ductile Fracture in Pressurized Line Pipe (78-PVP-3) **PVT 13**
J-Integral Approach to Fracture of Rotating Disk **MT 128**
Orthogonal Machining of Bone **BE 122**
A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**
A Reexamination of Miklowitz-Kolsky Model (BN) **AM 218**
Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) **PVT 24**
Structural Designing With Ceramic Materials **P 260**
Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) **I 88**
On the Theories of Sheet Metal Necking and Forming Limits **MT 303**
Thermal Damage and Rail Load Stresses in a 33-Inch Railroad Car Wheel (77-WA/RT-2) **I 363**
On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) **MT 319**
Fracture Analysis
Fracture Analysis of Adhesively Bonded Cracked Panels (77-WA/Mat-2) **MT 10**
Fracture Criterion
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**
Fracture Discontinuities
Fracture Discontinuities and Structural Analysis in Resource Recovery Endeavors (77-Pet-32) **PVT 2**
Fracture Mechanics
Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) **MT 381**
Elastic-Plastic R-Curves (78-Mat-12) **MT 258**
Embedded Elliptical Crack at a Corner (78-PVP-5) **PVT 28**
Fracture Mechanics Approach to Fatigue Analysis in Design **MT 113**
Fracture Mechanics of Composite Materials **MT 233**
A Means of Assessing the Effects of Periodic Proof Testing and NDE on the Reliability of Cyclically Loaded Structures (77-PVP-44) **PVT 150**
Quarter Elliptical Cracks Emanating From Holes in Plates **MT 144**
Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**
Sudden Appearance of a Crack in a Stretched Finite Strip **AM 277**
Three-Dimensional Wave Propagation in a Cracked Elastic Solid **AM 807**
Weakest-Link Model for the Prediction of Fatigue Crack Growth Rate **MT 170**
Fracture Mechanics Analysis
Fatigue Crack Growth of Bondline Cracks in Structural Bonded Joints **MT 39**
Fracture Parameter
On the Estimation of a Crack Fracture Parameter by Long-Wavelength Scattering (BN) **AM 453**
Fracture Propagation
Shear Fracture Propagation by DCB Testing (77-Pet-33) **PVT 18**
Fracture Resistance
Application of the R-Curve Concept to Fatigue Crack Growth **416**
Comparison of Dynamic Tear and Charpy-V-Notch Impact Properties of Plate Steels **MT 204**
Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) **PVT 74**
Fracture Strength
Fracture Strength and Thermal Shock Resistance of Thick and Thin-Wall Magnesium-Aluminum-Silicate Ceramic Heat Regenerators (77-GT-98) **P 136**
Fracture Toughness
Assessment of Weld Heat-Affected Zones in a Reactor Vessel Material (78-Mat-14) **MT 267**
Combined Mode Fracture Toughness Measurement by the Disk Test **MT 175**
Crack Growth Resistance at Low Stress Intensities **MT 134**
A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) **MT 272**
General Yielding of Charpy V-Notch and Precracked Charpy Specimens **MT 183**
The Room Temperature and Elevated Temperature Fracture Toughness Response of Alloy A-286 **MT 195**
Fragility
Experimental Observations on the Thermal Fragility of Erythrocytes Including the Effects of Storage and Anticoagulant **BE 223**
Francis, J. E. Thermographic Determination of Fatigue Damage **MT 200**
Franklin, C. J. Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) **P 704**
Fratila, R. *(author)* An Introduction to the Theory of Linear Systems (BR) **DS 162**
Fredberg, J. J. Canine Pulmonary Input Impedance Measured by Transient Forced Oscillations **BE 67**; Mechanical Response of the Lungs at High Frequencies **BE 57**; Noninvasive Inference of Airway Network Geometry From Broadband Lung Reflection Data **BE 131**
Free Convection
An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition From Laminar Forced Convection to Turbulent Free Convection Over a Horizontal Isothermally Heated Plate **HT 429**
Free Convection Effects on Stokes' Problem for a Vertical Plate in Rarefied Gas-Medium (BN) **AM 697**
Free Convection Across Inclined Air Layers With One Surface V-Corrugated **HT 410**
Laminar Free Convection Heat Transfer Through Horizontal Duct Connecting Two Fluid Reservoirs at Different Temperatures (TN) **HT 725**
Laminar Natural Convection Heat Transfer in a Horizontal Cavity With Different End Temperatures **HT 641**
Predictive Capabilities of Series Solutions for Laminar Free Convection Boundary Layer Heat Transfer (TN) **HT 160**
Transient Free Convection From a Suddenly Heated Horizontal Wire **HT 423**
Turbulent Heat Transfer by Free Convection from a Rough Surface (TN) **HT 727**
Free Convection Analysis
A Local Nonsimilarity Analysis of Free Convection From a Horizontal Cylindrical Surface (TN) **HT 165**
Free Convection Flow
Nonsimilar Laminar Free Convection Flow Along a Nonisothermal Vertical Plate (TN) **HT 163**
Free Flight Spheres
Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) **F 17**; (D) **F 247**; (AC) **F 248**
Free-Forced Convection
Free-Forced Convection in the Entry Region of a Heated Straight Pipe **HT 212**
Free-Stream Turbulence
Effect of Free-Steam Turbulence on Heat Transfer Through a Turbulent Boundary Layer **HT 671**
Free-Stream Turbulence Intensity
The Effects of Free-Stream Turbulence Intensity and Velocity Distribution on Heat Transfer to Curved Surfaces (77-GT-48) **P 159**
Free-Surface Behavior
The Effect of a Thin Layer Surface Inhomogeneity on Dynamic Surface Response **AM 95**
Free Surfaces
Dynamics of Developing Laminar Non-Newtonian Falling Liquid Films With Free Surface **AM 19**
Reflection of Acceleration Waves in an Elastic-Plastic Medium **AM 51**
Free Torsional Oscillations
Influence of Secondary Effects on Free Torsional Oscillations of Thin-Walled Open Section Beams (BN) **AM 681**
Free Upper Surface
Thermal Instability of a Volumetrically-Heated Pool With Phase Change and a Free Upper Surface (TN) **HT 376**
Free Vibrations
Dynamic Response of Packets of Blades by the Finite Element Method (77-DET-70) **MD 660**
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**
An Experimental Study of First-Passage Failure of a Randomly Excited Structure (78-WA/APM-14) **AM 917**
Modal Method for Free Vibration of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**
Natural Frequencies of Clamped Orthotropic Rectangular Plates With Varying Thickness (78-WA/APM-9) **AM 871**
A Theorem on the Free Vibtation of Damped Systems (D) **AM 225**; (AC) **AM 226**
Vibrations and Dynamic Response of Membranes With Arbitrary Shape **AM 153**
Freezing
Analytic Solutions to the Heat Equation Involving a Moving Boundary With Applications to the Change of Phase Problem (the Inverse Stefan Problem) **HT 300**
The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 367**

Numerical Method for Multi-Dimensional Freezing Problems in Arbitrary Domains **HT 294**

Freight Car Stability

High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) **I 49**

Freight Car Truck Load Data

Summarization and Comparison of Freight Car Truck Load Data (77-WA/RT-3) **I 60**

Freight Cars

Graphical Output-Oriented Computer Model of a Railroad Freight Car With Conventional Trucks (77-RT-11) **I 67**

Ride Quality of Autorack Cars (77-WA/RT-7) **I 171**

A Survey of Rail Vehicle Testing for Validation of Theoretical Dynamic Analyses **DS 238**

Freight Cars Progress Report

Progress in Railway Mechanical Engineering (1976-1977 Report of Survey Committee) Cars and Equipment (77-WA/RT-5) **I 79**

Freight Trains

Energy Requirements of the Rail Mode (78-RT-1) **I 475**

Frequency Domain

A Quadrature Representation of the Viscoelastic Analogy in the Frequency Domain (BN) **AM 955**

Frequency Evaluation

High Frequency Ultrasonic Evaluation of Ceramics for Gas Turbines **P 549**

Frequency Factor

Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) **MD 667**

Frequency Ranges

Nonparallel Effects on the Stability of Jet Flows (78-WA/APM-16) **AM 717**

Frequency Ratio

The Coupled Response of a Dynamic Element Riding on a Continuously Supported Beam **AM 864**

Frequency Response

Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structures (77-DET-84) **MD 279**

Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) **I 323**

Model Verification of Mixed Dynamic Systems (77-DET-85) **MD 266**

Frequency Signal

A Novel Pressure Transducer Using Mechanical Resonance **DS 83**

Freudenstein, F. Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (D) (AC) **MD 498**

Freund, L. B. Elastic Interface Waves Involving Separation (D) **AM 226**; (AC) **AM 227**; On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) **PVT 13**

Friction

An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) **MD 222**

Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**

Boundary Layer Calculation for Analysis and Design **F 232**

The Conflicting Roles of Carbontetrachloride as a Boundary Lubricant (77-WA/Prod-7) **I 244**

Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) **MD 242**

Frictional Moment of Flow Between Two Concentric Spheres, One of Which Rotates (D) **F 246**; (AC) **F 247**

Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/Prod-29) **I 217**

Influence of the Side Walls on the Turbulent Center-Plane Boundary-Layer in a Square Duct **F 91**

Load Distribution in Timing Belts (77-DET-100) **MD 208**

Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear **L 492**; (D) (AC) **L 499**

A Realistic Solution of the Symmetric Top Problem (78-WA/APM-20) **AM 903**

Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow **F 215**; (D) (AC) **F 377**

Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**

Theory of Linear Continuous Extrusion—Linex (77-WA/Prod-17) **I 37**

Tribology, A Systems Approach to the Science and Technology of Friction, Lubrication and Wear (BR) **MT 338**; (BR) **L 513**

A Turbulent Energy Dissipation Model for Flows With Drag Reduction **F 107**

Variables Influencing Degradation of SiC Abrasive Papers **L 501**

Friction Behavior

Experimental Heat Transfer Behavior of a Turbulent Boundary Layer on a Rough Surface With Blowing **HT 134**

Friction Coefficient Distribution

Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) **I 181**

Friction Coefficients

Determining the Coefficient of Friction for Rolling Disks (77-Lub-11) **L 25**

Initial Response of a Rock Penetrator **AM 559**

Friction Damping

Ride Quality of Autorack Cars (77-WA/RT-7) **I 171**

Friction Factor

Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**

On the Flow Regimes of Downholes Flow of a Gas-Particle Mixture **F 410**

Gas Flow Through Cracks **F 453**

Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**

Friction Failure

Two Temperature Gradients Model for Friction Failure (77-Lub-28) **L 479**; (D) **L 484**; (AC) **L 485**

Friction Stress

Limit Analysis of Hollow Disk Forging: Part 1: Upper Bound (77-WA/Prod-2) **I 340**; (D) (AC) **345**; Part 2: Lower Bound (77-WA/Prod-3) **I 347**; (D) (AC) **I 345**

Frictional Behavior

Frictional and Thermal Behavior of Sliding-Rolling Concentrated Contacts (77-Lub-7) **L 121**

Frictional Dynamics

The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) **L 219**; (D) **L 224**; (AC) **L 225**

Frictional Forces

Stability of a Rectangular Simply Supported Plate Subjected to Nonincreasing Tangential Follower Forces (BN) **AM 223**

Frictional Heating

Thermoelastic Effects in Frictionally Heated Line Contact of Slablike Bodies (77-Lub-21) **L 136**

Frictional Moment

Frictional Moment of Flow Between Two Concentric Spheres, One of Which Rotates **F 97**

Frictional Properties

Methods of Decreasing Wear in Metal-Polymer Contacts **L 185**

Frictional Traction

Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) **L 156**; (D) (AC) **L 165**

Friedmann, P. P. *(reviewer)* Helicopter Dynamics **AM 966**

Fritsch, C. W. Fracture Strength and Thermal Shock Resistance of Thick And Thin-Wall Magnesium-Aluminum-Silicate Ceramic Heat Regenerators (77-GT-96) **P 136**

Frohrib, D. A. Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structures (77-DET-84) **MD 279**

Frozen Soils

Pile Foundations in Frozen Soils (77-Pet-79) **PVT 302**

Frêne, J. The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow (D) **F 337-380**; (AC) **F 380**

Fucui, Y. Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) **MD 460**

Fuel Conservation

Development of Gas Turbine Performance Seeking Logic (78-GT-13) **P 571**; (D) (AC) **P 575**

The Economic Impact of Wear on Society (Op) **L 145**

Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) **P 575**

A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) **F 443**

A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) **F 434**

A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) **F 439**

Fuel Controllers

Fuel Controller Design in a Once-Through Subcritical Steam Generator System **P 189**

Fuel Cost

A Parametric Study of Hot Water Storage for Peak Power Generation **P 229**

Fuel Economics

Power System Economics: On Selection of Engineering Alternatives (77-JPGC-Pwr-7) **P 333**; (D) **P 343**; (AC) **P 346**

Fuel Injection Pressure

Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) **I 210**

Fuel Momentum

An Investigation of the Influence of Back Pressure on the Diffusion of Mass and Momentum of Fuel in Diesel Spray **P 241**

Fuel Spray

Fuel Spray Trajectory in Diesel Engines (77-DGP-1) **P 326**

Fuel Turbopump

The Space Shuttle Main Engine High-Pressure Fuel Turbopump Rotordynamic Instability Problem (77-GT-49) **P 48**

Fuels

Considerations When Converting Industrial Plants to Coal Firing (77-IPC-Fu-1) **P 374**

Development of a Hybrid Catalytic Combustor **P 267**

A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) **P 511**

Low NOx Combustion of Paraho Shale Oil in a 45 MW Utility Boiler (77-WA/Fu-1) **P 393**

Performance and Economics of Advanced Energy Conversion Systems for Coal and Coal-Derived Fuels **P 252**

A Thermodynamic Study of Heating with Geothermal Energy (77-WA/Ener-1) **P 503**

Radiation From a Methanol Furnace (77-HT-14) **HT 247**

Tokamak Reactors (77-WA/NE-3) **P 412**

Fujii, S. Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**; The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) **MD 85**; A Transformation Method With Two Parameters for Constrained Optimal Control Problems **DS 124**

Fujimoto, H. A Transformation Method With Two Parameters for Constrained Optimal Control Problems **DS 124**

Fujiyoshi, S. Variables Influencing Degradation of SiC Abrasive Papers **L 501**

Fukusaki, S. Experimental Study on the Effect of Orientation of Heating Circular Plate on Film Boiling Heat Transfer for Fluorocarbon Refrigerant R-11 **HT 624**

Fukusako, S. Heat Transfer in a Cavity Packed with Fibrous Glass (TN) **HT 748**

Fulkerson, D. A. Flow Field Coupling Between Compression System Components in Asymmetric Flow (77-GT-17) **P 66**

Fuller, M. A. The Generation of Continuous Gradient Functions (TB) **DS 152**

Fully Stalled Flows

A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages (D) (AC) **F 376**

Functional Analysis

Developments in Nonlinear Controller Synthesis: An Overview **DS 59**

Fundamental Equations

Approximation of Fundamental Equations for Finite-Dimensional Modeling of Thermo-Fluid Processes (TB) **P 722**

Fundamental Frequency

An Approximate Solution for the Fundamental Frequency of Plates (BN) **AM 936**

Fundamental Frequency Determination

On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) **MD 703**

Fundamental Frequency Equation

Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-88) **MD 274**

Fung, Y. C. *(author)* A First Course in Continuum Mechanics (BR) **AM 969**

Fusion Energy

Fusion Energy (77-WA/NE-1) **P 399**

Fusion Power

Structural and Mechanical Design of Tokamaks (77-WA/NE-2) **P 404**

Fusion Reactor

Assessment of Surface-Heating Problems in Laser-Fusion

Reactors HT 311
Helium Blistering in Metals (78-Mat-5) MT 411
Fusion Test Reactor
Special Engineering Problems of TFTR (77-WA/NE-4) P 417

G

Gaggioli, R. A. A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) P 511
Gai, S. L. A Note on the Low Speed Flow Up a Step (TB) F 127
Gallagher, J. P. Guest Editorial MT 1
Galletly, G. D. Elastic and Elastic-Plastic Buckling of Internally Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) PVT 335
Gangadharan, A. C. Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) PVT 107
Ganong, G. P. Quarter Elliptical Cracks Emanating From Holes in Plates MT 144
Gany, A. Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) HT 531
Gap Flow
A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) F 434
Gupta, G. D. *(reviewer)* The Theory of Approximate Methods and Their Application to the Numerical Solution of Singular Integral Equations (BR) AM 230
Garg, D. P. Developments in Nonlinear Controller Synthesis: An Overview DS 59
Garg, V. K. Nonparallel Effects on the Stability of Jet Flows (78-WA/APM-16) AM 717
Garmer, D. R. Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (D) L 285; (AC) L 286
Garrard, W. L. Effects of Jerk Limiting on the Stability of Automated Transit Vehicles DS 298
Gartling, D. K. Prediction of the Three-Dimensional Velocity Field of a Deflected Turbulent Jet (D) F 249; (AC) F 250
Gas Bearings
Analysis of Dynamic Tilt Stiffness and Damping Coefficients of Externally Pressurized Porous Gas Journal Bearings L 359
On the Analytical Solution of Externally Pressurized Porous Gas Journal Bearings (TB) L 442
Gas Bubbles
The Behavior of Gas Bubbles in the Casson Fluid AM 37
Experimental Study on Bubble Nucleation in the Oscillating Pressure Field (77-HT-22) HT 460
Gas-Cooled Reactor
Transient Analysis of a Permeable Thermal Barrier System (77-DE-24) MD 127
Gas Cycles
The Use of Liquid Natural Gas as Heat Sink for Power Cycles (77-GT-19) P 169
Gas-Filled Space
Conditions for a Pipe to Run Full When Discharging Liquid Into a Space Filled With Gas (D) (AC) F 136
Gas-Lubricated Thrust Bearing
A Study of the Stability of an Externally-Pressurized Gas-Lubricated Thrust Bearing With a Flexible Damped Support L 364
Gas Mixtures
Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) BE 1
Gas Molecules
Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear L 492; (D) (AC) L 499
Gas-Particle Flow
A Novel Physico-Computational Model for Quasi One-Dimensional Gas-Particle Flows (76-WA/FE-36) F 343
Gas-Particle Mixture
On the Flow Regimes of Downhole Flow of a Gas-Particle Mixture F 410
Gas Path Performance
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) P 691; (D) (AC) P 697
Gas Pipelines
Shear Fracture Propagation by DCB Testing (77-Pet-33) PVT 18
Gas Slider Bearing
Asymptotic Methods for a General Finite Width Gas Slider Bearing L 254
Gas Stream
Experimental Study of a Solid-Gas Jet Issuing Into a Transverse Stream (78-WA/FE-2) F 333; (D) F 338; (AC) F 339
Gas Temperature
An Experimental and Theoretical Study of Heat Transfer in Vertical Tube Flows HT 86
Gas Turbine Blade
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) P 586; (D) (AC) P 591
Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) MD 520
Film Cooling of a Gas Turbine Blade P 476
Gas Turbine Combustor
Design and Development of a High-Pressure Combustor for Aero-Gas-Turbines (77-GT-96) P 129
Gas Turbine Cycles
High-Temperature Potential of Uncooled Radial Turbines (77-GT-46) P 294
Gas Turbine Development
Development of Gas Turbine Performance Seeking Logic (78-GT-13) P 571; (D) (AC) P 575
Gas Turbine Development Program
Baseline Gas Turbine Development Program, Third Quarterly Progress Report (GR) MD 205
Gas Turbine Engines
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) MD 558
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) P 618
High Frequency Ultrasonic Evaluation of Ceramics for Gas Turbines P 549
Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) MD 139
Gas Turbine Fans
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) P 655
Gas-Turbine Power System
Three-Shaft Automotive Turbine-Transmission Systems of the KTT Type—Performance and Features (77-GT-94) P 95
Gas Turbine Surfaces
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) P 439
Gas Turbines
Aluminous Kestite—An Improved Rotary Ceramic Regenerator Core Material (77-GT-60) P 36
The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) P 452
The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) P 630
The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) P 640
The Effects of Free-Stream Turbulence Intensity and Velocity Distribution on Heat Transfer to Curved Surfaces (77-GT-48) P 159
Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) P 704
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) P 575
Progress on Ceramic Rotor Blade Development for Industrial Gas Turbines (77-GT-42) P 58
Radiation From a Methanol Furnace (77-HT-14) HT 247
Reliability and Durability of Ceramic Regenerators in a Gas Turbine (77-GT-59) P 73
Throughflow Calculations for Transonic Axial Flow Turbines P 212
Gas Wells
Nonshrinking, Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) PVT 34
Gasdynamic Flow
Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy P 525
Gasdynamics
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) PVT 13
Gaseous Diffusion
A Theoretical Analysis of CO_2 Absorption in Sun Versus Shade Leaves BE 20
Gases
Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) HT 531
Assessment of Surface-Heating Problems in Laser-Fusion Reactors HT 311
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) P 520
Gas Flow Through Cracks F 453
Heat Transfer During Piston Compression HT 527
Multi-Dimensional Radiative Transfer in Nongray Gases—General Formulation and the Bulk Radiative Exchange Approximation (77-HT-51) HT 486
Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) PVT 24
Theoretical Determination of Band Absorption for Nonrigid Rotation With Applications to CO, NO, N_2O, and CO_2 HT 230
Gasification Facility
An Assessment of Overburden Stability in the In-Situ Gasification of Texas Lignite PVT 285
Gaussian Closure Technique
Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique AM 393
Gaussian Wide Band Process
Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) MD 619
Gautesen, A. K. A Ray Theory for Elastodynamic Stress-Intensity Factors AM 123
Gay, D. Influence of Secondary Effects on Free Torsional Oscillations of Thin-Walled Open Section Beams (BN) AM 681
Gdoutos, E. E. Experimental Solution of Flexed Plates by the Method of Caustics (Er) AM 965
Gear Drives
Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) MD 723
Gear Efficiency
A Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) MD 470
Gear Impingement Depth
Study of Lubricant Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) MD 61; (D) MD 68; (AC) MD 68
Gear Material
Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) MD 433
Gear Mesh
Study of Lubricant Jet Flow Phenomena in Spur Gear-Out Condition (77-DET-104) MD 61; (D) (AC) MD 68
Gear Mesh Excitation Spectra
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) MD 715
Gear Pitting
The Practical Significance of Designing to Gear Pitting Fatigue Life Criteria (77-DET-122) MD 46
Gear Strength
The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) MD 417
Gear Surfaces
A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) MD 451
Gear Systems
Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) MD 26
Gear Teeth
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 1: Analysis (77-DET-52) MD 382; Part 2: Experimental Investigation (77-DET-53) MD 395; (D) (AC) MD 404
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) MD 374
Gear Tooth Loads
Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) MD 89
Gear Transmissions
Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) MD 303
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) MD 77
Gear Undercutting
An Analysis of Undercut Conditions and of Appearance of Contact Lines Envelope Conditions of Gears

(77-DET-2) **MD 423**

Gearbox Assembly
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) **MD 696**

Geared Rotor System
Critical Speeds, Stability and Response of a Geared Train of Rotors (77-DET-30) **MD 535**; (D) **MD 538**; (AC) **MD 539**

Geared Systems
Rotational Vibration With Backlash: Part 1 (77-DET-105) **MD 363**

Gears
The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) **MD 85**
Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) **MD 54**
Lattice Contact In Generated Spiral Bevel Gears (77-DET-63) **MD 42**
Review of Wear Problems in the Computer Industry **L 189**; (D) **L 195-197**; (AC) **L 198**

Gebhart, B. Effect of Flow Direction on Calibration of Hot-Film Anemometers at Low Velocities (TN) **HT 381**; Leading Edge Effects in Transient Natural Convection Flow Adjacent to a Vertical Surface (TN) **HT 731**

Gecit, M. R. The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) **MT 2**

General Dynamic Loads
Vibrations and Dynamic Response of Membranes With Arbitrary Shape **AM 153**

General Mode Approach
A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**

Generalized Decomposition Procedure
A Generalized Decomposition Procedure and Its Application to Engineering Design (77-DET-62) **MD 739**

Generators
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) **PVT 107**

Genin, J. Stability of a Vehicle on a Multispan Simply Supported Guideway **DS 326**

Gentle, C. R. Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (D) **L 416**; (AC) **L 417**

Geometric Parameters
A Theoretical Analysis of CO_2 Absorption in Sun Versus Shade Leaves **BE 29**

Geotechnical Engineering
Pile Foundations in Frozen Soils (77-Pet-79) **PVT 302**

Geotechnical Mechanics
Structural and Geothermal Mechanics (BR) **AM 968**

Geothermal Aquifers
Convection in a Porous Medium Heated From Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient (77-HT-56) **HT 448**

Geothermal Bit Design
Diamond Compact Cutter Studies for Geothermal Bit Design **PVT 406**

Geothermal Energy
A Thermodynamic Study of Heating With Geothermal Energy (77-WA/Ener-1) **P 503**

Geothermal Energy Extraction
Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Rock Masses **PVT 277**

Geothermal Steam
Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**

Geothermal Systems
Thermosyphon Models for Downhole Heat Exchanger Applications in Shallow Geothermal Systems **HT 713**

Gerbert, G. Load Distribution in Timing Belts (77-DET-100) **MD 208**

Gerharz, R. The Flapwing, A Unique Fluid Machine Element **F 237**

Ghose, S. The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**

Ghosh, M. K. Dynamic Characteristic of Multirecess Externally Pressurized Oil Journal Bearing **L 467**

Ghosh, P. K. Large Deflection of a Rectangular Plate Resting on a Pasternak-Type Elastic Foundation (Er) **AM 459**

Giedt, W. H. Calculation of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (76-WA/FE-31) **F 355**

Gilbert, K. E. *(author)* Exoskeleton Prototype Project (GR) **MD 206**

Gilpin, R. R. An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition From Laminar Forced Convection to Turbulent Free Convection Over a Horizontal Isothermally Heated Plate **HT 429**; Experiments on the Onset of Longitudinal Vortices in Horizontal Blasius Flow Heated From Below **HT 71**

Girl, J. Divergence Buckling of a Simple Frame, Subject to a Follower Force (BN) **AM 426**

Girth-Butt Welds
A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**

Glass
Heat Transfer in a Cavity Packed With Fibrous Glass (TN) **HT 748**

Glass Fibers
Stress in Glass Fibers Induced by the Draw Force (78-WA/APM-21) **AM 765**

Glass Transitions
Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) **L 404**; (D) **L 416**; (AC) **L 417**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) **L 418**

Glazing Materials
Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) **P 497**

Glenn, L. A. Contrasting Fracture Models for Granite Under Dynamic Loading **MT 287**

Glicksman, L. R. An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**

Global Sliding
Elastic Interface Waves and Sliding Between Two Solids **AM 325**

Global Stability
Pipes Supported at Both Ends Cannot Flutter **AM 619**

Glow-Discharge Nitriding
Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) **MD 16**

Goal Programming
Application of Goal Programming to Machinability Data Optimization (77-DET-19) **MD 286**

Godet, M. Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) **L 304**; (D) (AC) **L 307**

Godfrey, D. Lubricant-Breakdown in Instrument Ball Bearings (D) **L 393**; (AC) **L 394**

Goh, T. N. Use of Secondary Input for Process Control—An Application to a Digester Pulping Process **DS 88**

Gohring, B. Parameterschatzverfahren Zur Systemidentifikation (BR) **DS 101**

Gohritz, A. Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) **MD 433**

Goksem, P. G. An Approximate Equation for Predicting the Isothermal and Nonisothermal Starved Rolling Traction in an E.H.L. Line Contact **L 472**; The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact Part I: Fully Flooded Conditions **L 346**; (Er) **L 466**; Part II: Starved Conditions **L 353**; Measurement of Roller Speed in a Cylindrical Roller Bearing Using a Laser Anemometer **L 486**

Golay, M. W. Interferometric Investigation of Turbulently Fluctuating Temperature in an LMFBR Outlet Plenum Geometry (76-WA/HT-82) **HT 334**

Gold, B. Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) **HT 281**

Goldfinch, A. L. A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) **F 395**

Goldsmith, W. Response of a Realistic Human Head-Neck Model to Impact **BE 25**

Goldstein, R. J. Adiabatic Wall Temperature and Heat Transfer Downstream of Injection Through Two Rows of Holes (77-GT-50) **P 303**; An Experimental Study of Natural Convection Heat Transfer in Concentric and Eccentric Horizontal Cylindrical Annuli **HT 635**; Film Cooling of a Gas Turbine Blade **P 476**

Gollay, B. W. Strain Energy Minimization Leading to Timoshenko's Clamped Rectangular Plate Solution (BN) **AM 948**

Gomah, E. M. Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) **PVT 194**

Gomi, M. Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**

Gori, F. Variable Physical Properties in Laminar Heating of Pseudoplastic Fluids with Constant Wall Heat Flux **HT 220**

Gossard, D. C. On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/Prod-14) **I 127**

Gottlieb, D. *(author)* Numerical Analysis of Spectral Methods: Theory and Application (BR) **AM 969**

Government Reports
Automatic Design **MD 205**
Baseline Gas Turbine Development Program, Third Quarterly Progress Report (GR) **MD 205**
Battery-Flywheel Hybrid Electric Power System for Near-Term Application. Volume I. System Description **MD 203**; Volume II. System Design **MD 204**
Comparative Measurements of Different Electric Drivers for an Experimental Motor Vehicle **MD 204**
Computer Aided Design for Manufacturing-Mechanical. A Bibliography With Abstracts **MD 203**
Curve Linkage Manipulator **MD 205**
Design and Development of a Segmented Magnet Homopolar Torque Converter **MD 205**
Design and Evaluation of Advanced High Speed Fuel Pump (GR) **MD 205**
Design and Fatigue Testing of Integral Armored Servo Actuator Modified Trunnion **MD 204**
A Development Program to Determine the Feasibility of Using a Compact, Efficient Solenoid as an Actuator for Driving a Blood Pump **MD 206**
Development of Test and Analysis Plan for Mechanical Component Reliabilty **MD 204**
Exoskeleton Prototype Project **MD 206**
FORD/ERDA Continuously Variable Transmission. Phase I. Transmission Design. Progress Report No. 9, January 1-March 31, 1976 **MD 203**
Hydraulic Actuators for Active Optical Systems **MD 204**
Investigation of Rotary Actuation Technique **MD 206**
Investigation of a 30,000-RPM Turbine-Speed Hydraulic Pump **MD 206**
Machine Automation and Numerical Control **MD 203**
Mechanical Engineering Series Machine Design Sub-Series. Volume I **MD 204**
Opening and Gripping Mechanism for Automatic Produce-Bagging Machine That Uses Factory-Roll Polyethylene Net Tubing **MD 204**
Progress On The Variable-Displacement Spark Ignition Engine (GR) **MD 203**
Sprag Overriding Aircraft Clutch **MD 205**
Theory of Mechanisms and Machines (Theory, Example, Graphical Operations)—Translation **MD 206**

Gradient Functions
The Generation of Continuous Gradient Functions (TB) **DS 152**

Grady, D. E. Initial Response of a Rock Penetrator **AM 559**

Graff, W. J. Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) **PVT 194**

Graham, C. O., Jr. Combing of Opening Room Blends of Cotton and Polyester (77-Tex-5) **I 21**

Grant, G. N. C. Comparison of Some Optical Control Methods for the Design of Turbine Blades (77-DET-43) **MD 173**

Grant, S. J. Control of Clearance Effects in Mechanisms (77-WA/DE-2) **MD 728**

Granular Material Flow
Granular Material Flow in Two-Dimensional Hoppers **AM 43**

Granulate-Fluid Exchange Processes
On the Analogy Between the Calorimeter Problem and Some Granulate-Fluid Exchange Processes **HT 319**

Graphical Interpretation
Graphical Interpretation of the Solution to the Redundant Problem in Biomechanics **BE 159**

Graphical Results
Determination of Admissible Temperature Increases to Prevent Vertical Track Buckling **AM 585**

Graphite Composites
Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) **MT 64**

Gray, K. E. An Assessment of Overburden Stability in the In-Situ Gasification of Texas Lignite **PVT 285**

Green, A. E. The Second Law of Thermodynamics and Cyclic Processes **AM 487**

Green, D. M. Measurement of Burn-Induced Leakage of Macromolecules in Living Tissue **BE 153**

Greene, R. L. Fatigue Design Criterion for Pressure Vessel

Alloys (D) **PVT 236**

Greenfield, L. P. Ride Quality of Autorack Cars (77-WA/RT-7) **I 171**

Greif, R. An Experimental and Theoretical Study of Heat Transfer in Vertical Tube Flows **HT 86**; Heat Transfer During Piston Compression **HT 527**; Shock Tube Measurements of Carbon Dioxide in the 2.7 Micron Region (Er) **HT 689**; Theoretical Determination of Band Absorption for Nonrigid Rotation With Applications to CO, NO, N_2O, and CO_2 **HT 230**

Greitzer, E. M. Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) **P 618**; Flow Field Coupling Between Compression System Components in Asymmetric Flow (77-GT-17) **P 66**; Prediction of Compressor Performance in Rotating Stall (77-GT-10) **P 1**; (D) **P 13**; (AC) **P 14**

Griffith Cracks

Dynamic Stress Concentration Around Two Coplanar Griffith Cracks in a Infinite Elastic Medium **AM 603**

Grimble, M. J. The Generation of Continuous Gradient Functions (TB) **DS 152**

Grinding

Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/Prod-31) **I 181**

Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/Prod-28) **I 147**

The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) **MD 417**

An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/Prod-30) **I 153**

A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) **MD 451**

Grinding Wheel Performance

Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/Prod-27) **I 297**

Grinding Wheels

Mechanics of Rotary Dressing of Grinding Wheels (77-WA/Prod-23) **I 95**

Groenevold, D. C. Measurements of Transition Boiling Data for Water Under Forced Convective Conditions (TN) **HT 382**

Grogan, A. F. Gas Flow Through Cracks **F 453**

Grood, E. S. Left Ventricular Function: Correlation With Deformation of the Myocardium (77-WA/Bio-11) **BE 99**; (D) (AC) **BE 104**

Groom, J. J. A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**

Grooves

An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**

Gross, R. A. Fusion Energy (77-WA/NE-1) **P 399**

Grosshandler, W. L. Radiation From a Methanol Furnace (77-HT-14) **HT 247**

Grossman, D. G. Aluminous Keatite—An Improved Rotary Ceramic Regenerator Core Material (77-GT-60) **P 36**

Ground Temperature

Effect of an Elevated Pipeline on Moss Covered Ground Temperature **HT 363**

Ground Tooth Flanks

Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) **MD 723**

Group Technology Concept

Machine Loading and Product-Mix Analysis for Group Technology (77-WA/Prod-21) **I 370**

Growth Behavior

Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) **MT 381**

Growth Characteristics

Growth Characteristics of a Fatigue Crack Approaching and Growing Beneath an Adhesively Bonded Doubler (77-WA/Mat-14) **MT 52**

Growth Rate

Bubble Growth in Variable Pressure Fields **HT 453**

A Weakest-Link Model for the Prediction of Fatigue Crack Growth Rate **MT 170**

Growth Relations

Experiments and Universal Growth Relations for Vapor Bubbles With Microlayers **HT 41**

Guidance Systems

Magnetic Suspension for Low-Speed Vehicles **DS 333**

Guideway Irregularities

Power Spectral Density for Constrained Long Wavelength Guideway Irregularities (77-WA/Aut-13) **DS 18**

Guideway System

Stability of a Vehicle on a Multispan Simply Supported Guideway **DS 326**

Guideway Transit Vehicles

Steering Controller Design For Automated Guideway Transit Vehicles **DS 1**

Gujrati, B. D. The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) **L 219**; (D) **L 224**; (AC) **L 225**

Gun Barrels

Reduction of Heat Transfer to High Velocity Gun Barrels by Wear-Reducing Additives (77-HT-19) **HT 697**

Gunnerson, F. S. On the Thermodynamic Superheat Limit for Liquid Metals and Its Relation to the Leidenfrost Temperature (TN) **HT 734**

Gunderson, M. A Thermodynamic Study of Heating with Geothermal Energy (77-WA/Ener-1) **P 503**

Gunter, E. J. Optimum Bearing and Support Damping for Unbalance Response and Stability of Rotating Machinery (77-GT-27) **P 89**

Guntur, R. R. Application of The Parameter Plane Method to the Analysis of Directional Stability of Tractor-Semitrailers **DS 9**

Gupta, A. K. Rational and Economical Multicomponent Seismic Design of Piping Systems (TB) **PVT 425**

Gupta, G. D. Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) **PVT 107**

Gupta, K. C. A General Theory for Synthesizing Crank-Type Four-Bar Function Generators With Transmission Angle Control **AM 415**

Gupta, S. K. Accurate Spectral Modeling for Infrared Radiation (77-HT-69) **HT 240**

Gurtman, G. A. A Mixture Theory for Quasi-One-Dimensional Diffusion in Fiber-Reinforced Composites **HT 128**

Guying Hardware

Evaluation of the Creep Resistance of Wire Rope End Attachments (TB) **MT 214**

Gyrobondgraphs

On Gyrobondgraphs and Their Uses **DS 76**

H

Habercom, G. E., Jr. *(author)* Computer Aided Design For Manufacturing-Mechanical. A Bibliography With Abstracts (GR) **MD 203**; *(author)* Machine Automation and Numerical Control (GR) **MD 203**

Habib, I. S. Stresses in a Solidifying Semitransparent Cylindrical Medium by Conduction and Radiation (BN) **AM 946**

Habiani, H. B. A Comparative Study of Liapunov Stability Analyses of Flexible Damped Satellites **AM 657**

Haddow, J. B. Waves From Suddenly Punched Hole in Finitely Stretched Elastic Sheet **AM 83**

Hagstrom, J. Stiffness Coefficients and Allowable Loads for Nozzles in Flat-Bottom Storage Tanks (77-PVP-19) **PVT 389**

Haines, K. A. Torsional Vibrations of a Boiler Feed Pump (77-DET-28) **MD 637**

Hajji, M. A. Indentation of a Membrane on an Elastic Half Space **AM 320**

Half Planes

An Elastic Strip Pressed Against an Elastic Half Plane by a Steadily Moving Force **AM 89**

The End-Values of Distributed Loads in Half Planes by Caustics **AM 313**

Half Space

Dynamic Response of Circular Plates Resting on Viscoelastic Half Space **AM 379**

Indentation of a Membrane on an Elastic Half Space **AM 320**

On the Stress Field and Surface Deformation in a Half Space With a Cuboidal Zone in Which Initial Strains Are Uniform **AM 302**

Hale, J. K. *(reviewer)* Ordinary and Differential Equations (BR) **AM 230**

Hall, W. J. *(editor)* Structural and Geotechnical Mechanics (BR) **AM 968**

Ham, I. Machine Loading and Product-Mix Analysis for Group Technology (77-WA/Prod-21) **I 370**

Hamada, M. Design of U-Shaped Bellows Considering Low-Cycle Fatigue **PVT 382**

Hamed, A. A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) **F 31**

Hamilton, J. F. Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) **MD 599**

Hamrock, B. J. Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) **L 236**; (D) (A) **L 245**

Han, J. T. A Computer-Aided Feel Cam Design (TB) **MD 504**

Handsel, R. A. Stratapax Drill Bit for Gulf Coast Drilling (77-Pet-74) (TB) **PVT 234**

Hanna, O. T. Heat Transfer in Turbulent Pipe Flow for Liquids Having a Temperature-Dependent Viscosity **HT 224**

Hannoyer, M. J. Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) **MD 328**

Hansen, E. B. Stress Concentration in a Stretched Cylindrical Shell With Two Elliptical Holes (78-WA/APM-18) **AM 839**

Hansen, R. J. An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**

Hansen, S. *(author)* Hydraulic Actuators for Active Optical Systems (GR) **MD 204**

Hara, K. Experimental and Theoretical Study on Magnetoelastic Buckling of a Ferromagnetic Cantilevered Beam-Plate **AM 355**

Hard Surfaces

Depth of Penetration as a Predictor of the Wear Polymers on Hard, Rough Surfaces **L 92**

Hardening

Effect of Strain Hardening on the Large Plastic Deformation of a Cantilever (BN) **AM 953**

On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**

Void Growth and Local Necking in Biaxially Stretched Sheets **MT 164**

Hardening Hysteresis

The Steady State Response of Systems With Hardening Hysteresis (77-DET-71) **MD 193**

Hardening Law

Further Investigation of a New Hardening Law in Crystal Plasticity **AM 500**

Hardening Response

On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**

Hardness Parameters

Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) **PVT 74**

Hardt, D. E. Determining Muscle Forces in the Leg During Normal Human Walking—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) **BE 72**

Hargreaves, R. A. An Approximate Equation for Predicting the Isothermal and Nonisothermal Starved Rolling Traction in an E.H.L. Line Contact **L 472**; The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact Part I: Fully Flooded Conditions **L 346**; (Er) **L 466**; Part II: Starved Conditions **L 353**; Measurement of Roller Speed in a Cylinderical Roller Bearing Using a Laser Anemometer **L 486**

Harlow, F. H. Dynamic Plastic Instabilities in Stretching Plates and Shells **AM 105**

Harlow, M. W. Dynamics of Multirigid-Body Systems (78-WA/APM-10) **AM 899**

Harman, J. W. Prediction of Compressor Performance in Rotating Stall (D) **P 13**; (AC) **P 14**

Harmonic Balance Method

The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity **AM 643**

Harmonic Distributed Loads

Simulation of Continuous Systems by Periodic Structures **AM 385**

Harmonic Excitation

Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 660**

Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**

Harmonic Forcing

Wave Propagation and Instability in a Circular Semi-Infinite Liquid Jet Harmonically Forced at the Nozzle **AM 469**

Harmonic Oscillations

On the Nonlinear Response of a Relief Valve (77-DET-81) **MD 675**

Harmonic Vertical Excitations

Dynamic Response of Circular Plates Resting on Viscoelastic Half Space **AM 379**

Harmonic Wave Propagation
Harmonic Wave Propagation in a Periodically Layered, Infinite Elastic Body: Antiplane Strain **AM 343**
Harmonic Waves
Harmonic Waves in Layered Composites: New Bounds on Eigenfrequencies (78-WA/APM-23) **AM 829**
Harnoy, A. An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) **L 287**; (D) **L 294**; (AC) **L 295**
Harris, D. O. A Means of Assessing the Effects of Periodic Proof Testing and NDE on the Reliability of Cyclically Loaded Structures (77-PVP-44) **PVT 150**
Harrison, R. F. Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**
Hart-Smith, L. J. Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) **MT 16**
Hashemi, A. Shock Tube Measurements of Carbon Dioxide in the 2.7 Micron Region (Er) **HT 689**
Hashirizaki, S. Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**
Hashish, M. High Energy Water Jet Cutting Equations for Wood (77-WA/Prod-18) **I 452**; Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) **I 88**
Hasselman, T. K. Model Verification of Mixed Dynamic Systems (77-DET-85) **MD 266**
Hassid, S. A Turbulent Energy Dissipation Model for Flows With Drag Reduction **F 107**
Hall, S. K. Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/Prod-4) **I 356**
Haug, E. J. Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) **MD 311**
Haug, E. J., Jr. Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) **MD 492**; (D) (AC) **MD 498**
Haupt, P. *(author)* Viskoelastizität und Plastizität. Thermomechanisch Konsistente Materialgleich ungen (Viscoelasticity und Plasticity. Thermomechanically Consistent Constitutive Equations). (BR) **AM 457**
Hausseling, H. J. The Acceleration of Thin Cylindrical Bodies in a Viscous Fluid **AM 1**
Havner, K. S. Further Investigation of a New Hardening Law in Crystal Plasticity **AM 500**
Hawley, R. H. Experiments on Strain Rate History and Temperature Effects During the Plastic Deformation of Close-Packed Metals **AM 60**
Hawthorne, W. R. Nonaxisymmetric Flow through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**
Head-Loss Ratio
A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) **F 395**
Healey, A. J. Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part I—A Mathematical Model **DS 311**; Part II—Simulated Versus Experimental Data **DS 319**; The Prediction of Passenger Riding Comfort From Acceleration Data (77-WA/Aut-6) **DS 34**
Healy, S. P. Torsional Vibrations of a Vehicle Drive Line (77-DET-24) **MD 644**
Healzer, J. M. Experimental Heat Transfer Behavior of a Turbulent Boundary Layer on a Rough Surface With Blowing **HT 134**
Heard, T. C. The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) **P 452**
Heart Valves
Simulation of Cardiovascular Dynamics With the All-Pneumatic Artificial Ventricle System as a Replacement of the Myocardial Function **BE 35**
Heat
Experiments on the Onset of Longitudinal Vortices in Horizontal Blasius Flow Heated from Below **HT 71**
An Investigation of the Laminar Overfire Region Along Upright Surfaces (77-HT-68) **HT 112**
The Second Law of Thermodynamics and Cyclic Processes **AM 487**
Thermal Properties of Tungsten SRM'S 730 and 799 **HT 330**
Heat Balance Integral
The Heat Balance Integral in Steady-State Conduction (D) (AC) **HT 561**
Heat Conduction
Closed Form Solutions for Certain Heat Conduction Problems (TN) **HT 558**
Effect of Circumferential Wall Heat Conduction on Boundary Conditions for Heat Transfer in a Circular Tube (TN) **HT 537**
The Effect of Longitudinal Heat Conduction on Crossflow Heat Exchanger **HT 346**
Heat Conduction in Axisymmetric Body-Duct Configuration (TN) **HT 555**
A Note on the General Formulation of Phase Change Problem as Heat Conduction Problem with a Moving Heat Source (TN) **HT 370**
Transient Conduction in a Slab With Temperature Dependent Thermal Conductivity (TN) **HT 172**
Heat Conduction Study
A Perturbation Method for Studying Heat Conduction in Solid With Random Conductivity (BN) **AM 933**
Heat-Conduction Transients
The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transients **HT 120**
Heat Energy
Thermocline Degradation in a Packed Bed Thermal Storage Tank (TN) **HT 371**
Heat Engine Cycle
A Novel Absorption Regeneration-Thermodynamic Heat Engine Cycle **P 566**
Heat Equation
Analytic Solutions to the Heat Equation Involving a Moving Boundary with Applications to the Change of Phase Problem (the Inverse Stefan Problem) **HT 300**
Heat Exchange Institute (HEI)
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) **P 363**
Heat Exchanger
Performance Analysis of a Pancake Absorber-Helical Heat Exchanger for a Solar Concentrator **P 178**
Heat Exchanger Tube Arrays
Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) **MD 347**
Heat Exchangers
Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) **P 380**; (D) (AC) **P 389**
A Correlation for Laminar Hydrodynamic Entry Length Solutions for Circular and Noncircular Ducts **F 177**
Design Curves for Stress Analysis of U-Tube Heat Exchanger Tubesheet With Integral Channel and Head **PVT 221**
The Effect of Longitudinal Heat Conduction on Crossflow Heat Exchanger **HT 346**
Performance Ranking of Plate-Fin Heat Exchanger Surfaces (76-WA/HT-31) **HT 514**
Plastic Collapse of Oval Straight Tubes Under External Pressure (77-PVP-57) **PVT 46**
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) **P 576**
A Simplified Formula for Cross-Flow Heat Exchanger Effectiveness (TN) **HT 746**
Thermal Performance Deterioration in Crossflow Heat Exchanger due to the Flow Nonuniformity **HT 580**
Thermosyphon Models for Downhole Heat Exchanger Applications in Shallow Geothermal Systems **HT 713**
Heat Flow
An Efficient Algorithm for Evaluating Arrays of Extended Surface **HT 288**
A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**
Thermal Stresses in a Submerged-Arc Welded Joint Considering Phase Transformations **MT 356**
Heat Flux
Bubble Growth in Variable Pressure Fields **HT 453**
Determination of Void Fraction, Incipient Point of Boiling, and Initial Point of Net Vapor Generation in Sodium-Heated Helically Coiled Steam Generator Tubes **HT 268**
The Influence of the Retardation Time of the Heat Flux on Pulse Propagation (BN) **AM 433**
An Investigation of the Minimum Film Boiling Temperature on Horizontal Surfaces **HT 260**
Measurements of Transition Boiling Data for Water Under Forced Convective Conditions (TN) **HT 382**
On the Mikic-Rohsenow Pool Boiling Correlation (TN) **HT 733**
Mixed Convection about a Sphere with Uniform Surface Heat Flux (TN) **HT 542**
Multi-Dimensional Radiative Transfer in Nongray Gases—General Formulation and the Bulk Radiative Exchange Approximation (77-HT-51) **HT 486**
Spatial Distribution of Active Sites and Bubble Flux Density **HT 56**
Thermal Instability of a Volumetrically-Heated Pool With Phase Change and a Free Upper Surface (TN) **HT 376**
Heat Flux Density
Convection in an Enclosure-Source and Sink Located Along a Single Horizontal Boundary **HT 205**
Heat Flux Distribution
The Thermoelastic Patch Contact Problem for Large Peclet Number (77-Lub-32) **L 65**
Heat Generation
Lubrication of High-Speed, Large Bore Tapered-Roller Bearings (77-Lub-13) **L 31**
Heat Loss
Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) **BE 7**
Effect of an Elevated Pipeline on Moss Covered Ground Temperature **HT 363**
Heat Pipes
Hydrogen Gas Generation in Water Heat Pipes **MT 313**
Heat Propagation
Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) **HT 281**
Steam Bottoming Plants for Combined Cycles **P 283**
Heat-Recovery System
A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) **P 511**
Heat Release
Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAs-54) **I 383**
Heat Resistant Cement
Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) **PVT 34**
Heat Sink
The Use of Liquid Natural Gas as Heat Sink for Power Cycles (77-GT-19) **P 169**
Heat Sources
Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation **BE 49**
Correlation of Tempering Effects With Temperature Distribution in Steel Cutting Tools (77-WA/Prod-16) **I 131**
Experiments on the Role of Natural Convection in the Melting of Solids **HT 11**
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) **I 43**
Heat Storage
Analysis of the Effects of Finite Conductivity in the Single Blow Heat Storage Unit (TN) **HT 740**
Transient Response of a Hollow Cylindrical-Cross-Section Solid Sensible Heat: Storage Unit—Single Fluid (TN) **HT 737**
Heat Supply
A Three-Dimensional Treatment of Transient Thermal Stresses in a Circular Cylinder Due to an Arbitrary Heat Supply **AM 817**
Heat Thermal Storage Exchanger
Transient Behavior of a Solid Sensible Heat Thermal Storage Exchanger **HT 148**
Heat Transfer
Adiabatic Wall Temperature and Heat Transfer Downstream of Injection Through Two Rows of Holes (77-GT-50) **P 303**
Analytical Solutions to the Problem of Transient Heat Transfer in Living Tissue **BE 202**
Augmentation of Horizontal In-Tube Condensation by Means of Twisted-Tape Inserts and Internally Finned Tubes **HT 17**
Boundary Layer Closure and Heat Transfer in Constant Base Pressure and Simple Wave Guns **HT 690**
Combined Conduction-Radiation Heat Transfer Through an Irradiated Semi-transparent Plate (TN) **HT 169**
Combined Conductive and Radiative Heat Transfer in an Absorbing and Scattering Infinite Slab (77-HT-50) **HT 98**
Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) **I 159**
Correlation Equations for Turbulent Thermal Convection in a Horizontal Fluid Layer Heated Internally and from Below **HT 418**
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D)

(AC) **P 591**
Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) **P 497**
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**
Effect of Circumferential Wall Heat Conduction on Boundary Conditions for Heat Transfer in a Circular Tube (TN) **HT 537**
Effect of Flow Direction on Calibration of Hot-Film Anemometers at Low Velocities (TN) **HT 381**
Effect of Free-Steam Turbulence on Heat Transfer through a Turbulent Boundary Layer **HT 671**
The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 367**
The Effect of the London-Van Der Waals Dispersion Force on Interline Heat Transfer **HT 155**
Effect of Subcooling on Cylindrical Melting **HT 395**
The Effects of Free-Stream Turbulence Intensity and Velocity Distribution on Heat Transfer to Curved Surfaces (77-GT-48) **P 159**
An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**
An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition From Laminar Forced Convection to Turbulent Free Convection Over a Horizontal Isothermally Heated Plate **HT 429**
Experimental Study on Bubble Nucleation in the Oscillating Pressure Field (77-HT-22) **HT 480**
Experimental Study on the Effect of Orientation of Heating Circular Plate on Film Boiling Heat Transfer for Fluorcarbon Refrigerant R-11 **HT 624**
An Experimental Study of Natural Convection Heat Transfer in Concentric and Eccentric Horizontal Cylindrical Annuli **HT 635**
An Experimental and Theoretical Study of Heat Transfer in Vertical Tube Flows **HT 86**
Experiments and Universal Growth Relations for Vapor Bubbles With Microlayers **HT 41**
Flow and Heat Transfer in Convectively Cooled Underground Electric Cable Systems: Part 1—Velocity Distributions and Pressure Drop Correlations (76-WA/HT-45) **HT 30**; Part 2—Temperature Distributions and Heat Transfer Correlations (76-WA/HT-42) **HT 36**
Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Rock Masses **PVT 277**
Forced Convection Heat Transfer From Nonisothermal Thin Needles **HT 358**
Forced Convection Heat Transfer From a Shrouded Fin Array with and without Tip Clearance **HT 572**
Free Convection Across Inclined Air Layers With One Surface V-Corrugated **HT 410**
Free-Forced Convection in the Entry Region of a Heated Straight Pipe **HT 212**
Fuel Spray Trajectory in Diesel Engines (77-DGP-1) **P 326**
Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) **HT 352**
Heat Transfer in the Biconical and Concentric Spherical Viscometers (TN) **HT 750**
Heat Transfer in a Cavity Packed With Fibrous Glass (TN) **HT 748**
Heat Transfer from a Cylinder Oscillating in a Cross-Flow **HT 684**
Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow With Uniform Wall Temperature (TN) **HT 539**
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along a Vertical Isothermal Wall **HT 177**
Heat Transfer by Natural Convection Between a Vertical Surface and a Stably Stratified Fluid (TN) **HT 378**
Heat Transfer During Piston Compression **HT 527**
Heat Transfer and Shear Stress on a Heated Cone (BN) **AM 952**
Heat Transfer in Turbulent Pipe Flow for Liquids Having a Temperature-Dependent Viscosity **HT 224**
High-Temperature Potential of Uncooled Radial Turbines (77-GT-46) **P 294**
HTD Best Paper of the Year Announcement **HT 640**
Influence of System Pressure on Microlayer Evaporation Heat Transfer **HT 49**
Infrared Mean Absorption Coefficients of Luminous Flames and Smoke **HT 235**
Laminar Boundary Layer Transfer over Rotating Bodies in Forced Flow **HT 496**
Laminar Free Convection Heat Transfer through Horizontal Duct Connecting Two Fluid Reservoirs at Different Temperatures (TN) **HT 725**
Laminar Natural Convection Heat Transfer in a Horizontal Cavity with Different End Temperatures **HT 641**
Horizontal Cylindrical Surface (TN) **HT 165**
Magnetic Field Effects on Bubble Growth in Boiling Liquid Metals **HT 466**
Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**
A Mixture Theory for Quasi-One-Dimensional Diffusion in Fiber-Reinforced Composites **HT 128**
Natural Convection In Compound Parabolic Concentrators—A Finite-Element Solution **HT 199**
Natural Convection Heat Transfer in Beds of Inductively Heated Particles **HT 78**
Natural Convection in a Horizontal Porous Medium Subjected to an End-to-End Temperature Difference **HT 191**
Numerical Method for Multi-Dimensional Freezing Problems in Arbitrary Domains **HT 294**
The Numerical Prediction of the Turbulent Flow and Heat Transfer in the Entrance Region of a Parallel Plate Duct (D) **HT 561**; (AC) **HT 562**
The Numerical Prediction of Viscous Flow and Heat Transfer in Tube Banks **HT 565**
Partial Spectral Expansions for Problems in Thermal Convection **HT 435**
Pool Boiling Heat Transfer to Emulsions **HT 613**
Predictive Capabilities of Series Solutions for Laminar Free Convection Boundary Layer Heat Transfer (TN) **HT 160**
Radial Heat Transfer and Critical Biot Number With Radiation, Uniform Surface Heat Generation, and Curvature Effects in Convection (TN) **HT 374**
Reduction of Heat Transfer to High Velocity Gun Barrels by Wear-Reducing Additives (77-HT-19) **HT 697**
Review of Fundamental Principles of Heat Transfer (BR) **AM 235**
Shape of Two-Dimensional Solidification Interface During Directional Solidification by Continuous Casting **HT 3**
Simultaneous Measurements of Velocity and Temperature in Nonisothermal Flows **HT 340**
Some Effects of Mechanically-Produced Unsteady Boundary Layer Flows on Convective Heat Transfer Augmentation **HT 25**
A Surface Rejuvenation Model for Turbulent Heat Transfer in Annular Flow With High Prandtl Numbers **HT 92**
Thermal Response of Slabs Subjected to Non-Symmetric Convective Heat Transfer (78-DE-8) **MD 706**
Thermographic Determination of Fatigue Damage **MT 200**
Transient Analysis of a Permeable Thermal Barrier System (77-DE-24) **MD 127**
Transient Temperature Profile of a Hot Wall Due to an Impinging Liquid Droplet (TN) **HT 167**
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) **P 363**
Turbulent Heat Transfer Downstream of an Unsymmetric Blockage in a Tube **HT 588**
Turbulent Heat Transfer by Free Convection from a Rough Surface (TN) **HT 727**
Two Temperature Gradients Model for Friction Failure (77-Lub-28) **L 479**; (D) **L 484**; (AC) **L 485**
Variable Viscosity Effect on the Laminar Water Boundary Layer on Heated Cones **AM 481**

Heat Transfer Behavior
Experimental Heat Transfer Behavior of a Turbulent Boundary Layer on a Rough Surface With Blowing **HT 134**

Heat Transfer Phenomenology
Heat Transfer Phenomenology of a Hydrodynamically Unstable Melting System **HT 305**

Heat Transfer Processes
Melting and Natural Convection Due to a Vertical Embedded Heater (TN) **HT 368**

Heat Treatment
Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) **MT 338**

Heat Units
Two Thermodynamic Optima in the Design of Sensible Heat Units for Energy Storage **HT 708**

Heated Circular Cylinder
Effect of Subcooling on Cylindrical Melting **HT 395**

Heated Cones
Heat Transfer and Shear Stress on a Heated Cone (BN) **AM 952**
Variable Viscosity Effect on the Laminar Water Boundary Layer on Heated Cones **AM 481**

Heated Horizontal Wire
Transient Free Convection from a Suddenly Heated Horizontal Wire **HT 423**

Heated Inclined Walls
Time-Dependent Double-Diffusive Instability in a Density-Stratified Fluid along a Heated Inclined Wall (78-HT-43) **HT 653**

Heated Particles
Natural Convection Heat Transfer in Beds of Heated Particles **HT 78**

Heated Straight Pipe
Free-Forced Convection in the Entry Region of a Heated Straight Pipe **HT 212**

Heated Vertical Plates
Development of Wall and Free Plumes Above a Heated Vertical Plate **HT 184**

Heating
Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) **HT 531**
Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**; (Er) **HT 367**
The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact Part I: Fully Flooded Conditions **L 346**; (Er) **L 466**; Part II: Starved Conditions **L 353**
Experimental Study on the Effect of Orientation of Heating Circular Plate on Film Boiling Heat Transfer for Fluorocarbon Refrigerant R-11 **HT 624**
Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/Prod-22) **I 119**
Fusion Energy (77-WA/NE-1) **P 399**
Pseudo Bond Graphs for Thermal Energy Transport **DS 165**
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) **P 439**
A Thermodynamic Study of Heating with Geothermal Energy (77-WA/Ener-1) **P 503**
Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**
Variable Physical Properties in Laminar Heating of Pseudoplastic Fluids with Constant Wall Heat Flux **HT 220**
Wave Effects on the Transport to Falling Laminar Liquid Films **HT 143**

Heave Acceleration
Stability of a Vehicle on a Multispan Simply Supported Guideway **DS 326**

Heavy Vehicles
Straight-Air Disk Brake Systems for Heavy Vehicles (77-DE-23) **MD 113**

Heckmann, S. R. Thermoelastic Effects in Frictionally Heated Line Contact of Slablike Bodies (77-Lub-21) **L 136**

Hedge, S. Transient Conduction in a Slab With Temperature Dependent Thermal Conductivity (TN) **HT 172**

Hedrick, J. K. Optimization of Rail Vehicle Operating Speed With Practical Constraints (78-WA/DSC-28) **DS 260**; Rail Passenger Vehicle Lateral Dynamic Performance Improvement Through Active Control **DS 270**

Hegemier, G. A. A Mixture Theory for Quasi-One-Dimensional Diffusion in Fiber-Reinforced Composites **HT 126**

Helical Flows
Analytic Derivation of Static Pressure Distribution in Fully Developed Helical Flows **F 201**

Helical Gears
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) **MD 77**

Helical Heat Exchanger
Performance Analysis of a Pancake Absorber-Helical Heat Exchanger for a Solar Concentrator **P 178**

Helical Screw Turbines
Analytical Modeling of Helical Screw Turbines for Performance Prediction **P 482**

Helical Spring
On the Nonlinear Response of a Relief Valve (77-DET-81) **MD 675**
Saint-Venant's Principle for a Helical Spring **AM 297**

Helical Wires
Finite Extension of an Elastic Strand With a Central Core (78-WA/APM-7) **AM 852**

Helicopter Gearbox
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings

(77-DET-103) **MD 696**

Helium Blistering
Helium Blistering in Metals (78-Mat-5) **MT 411**

Hemispherical Emittances
Thermal Properties of Tungsten SRM'S 730 and 799 **HT 330**

Hemmings, J. W. On the Analogy Between the Calorimeter Problem and Some Granulate-Fluid Exchange Processes **HT 319**

Hemodynamics
The Behavior of Gas Bubbles in the Casson Fluid **AM 37**
Simulation of Cardiovascular Dynamics With the All-Pneumatic Artificial Ventricle System as a Replacement of the Myocardial Function **BE 35**

Heng, K. T. Measurements of Transition Boiling Data for Water Under Forced Convective Conditions (TN) **HT 382**

Henry, R. E. An Investigation of the Minimum Film Boiling Temperature on Horizontal Surfaces **HT 260**

Herrmann, G. Harmonic Wave Propagation in a Periodically Layered, Infinite Elastic Body: Antiplane Strain **AM 343**; Response of Collecting Plates in Electrostatic Precipitators Due to Shear Rapping (77-DET-98) **MD 105**; *(reviewer)* Sound Waves in Solids (BR) **AM 967**

Herrmann, W. The Effect of Material Constitutive Models on Stress Wave Propagation Calculations (77-WA/Mat-8) **MT 84**

Herron, I. H. Laminar Shear Layer Due to a Thin Flat Plate Oscillating With Zero Mean Velocity (78-WA/FE-16) **F 367**

Heymann, F. J. Liquid-Solid Impact Calculations With Triangular Elements (D) **F 255**; (AC) **F 256**

Hibbs, L. E., Jr. Diamond Compact Cutter Supplies for Geothermal Bit Design **PVT 406**

Hibner, D. H. Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) **MD 558**; Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) **MD 549**

Higginson, G. R. *(author)* Elasto-Hydrodynamic Lubrication (BR) **L 447**

High Contact Ratios
Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) **MD 69**

High Cycle Fatigue
Dynamic Severity Criterion for Designing Against High Cycle Fatigue (77-DE-28) **MD 10**

High Cycle Fatigue Response
The Stress Controlled High Cycle Fatigue Response of a Metastable Beta Titanium Alloy as Influenced by Several Test Variables (TB) **MT 426**

High Exciting Frequencies
Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) **HT 281**

High Explosive Hammer
Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) **PVT 194**

High Frequency Range
Mechanical Response of the Lungs at High Frequencies **BE 57**

High Frequency Ultrasonic Evaluation
High Frequency Ultrasonic Evaluation of Ceramics for Gas Turbines **P 549**

High Molecular Weight Polyethylene
The Wear of High Molecular Weight Polyethylene—Part I: The Wear of Isotropic Polyethylene Against Dry Stainless Steel in Unidirectional Motion **L 208**

High Precision Gears
Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) **MD 723**

High-Pressure Combustor
Design and Development of a High-Pressure Combustor for Aero-Gas-Turbines (77-GT-96) **P 129**

High-Pressure Fuel Turbopump
The Space Shuttle Main Engine High-Pressure Fuel Turbopump Rotordynamic Instability Problem (77-GT-49) **P 48**

High Pressure Release
Early Response of Hot Water to Sudden Release From High Pressure **HT 473**

High-Pressure Turbines
Flow Excited Vibrations in High-Pressure Turbines (Steam Whirl) **P 219**

High-Speed Bearing Losses
A High-Speed Rolling-Element Bearing Loss Investigation (77-GT-86) **P 40**; (D) **P 45**; (AC) **P 46**

High-Speed Hobbing
A Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) **MD 470**

High-Speed Lateral Stability
High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) **I 49**

High-Speed Sliding Power Collector
Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) **MD 242**

High Speed Steel Tools
On a Diffusion Wear Model for High Speed Steel Tools **L 436**

High-Speed Textile Spindles
One Stage and Two Stage Vibration Isolators as Applied to High Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) **MD 33**

High Temperature Bearing Steel
Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) **L 226**; (D) **L 232, 233**; (AC) **L 234**

High Temperature Metal Creep
An Analysis of High Temperature Metal Creep Part I: Experimental Definition of an Alloy **MT 363**; Part II: A Constitutive Formulation and Verification **MT 371**

High Temperature Properties
High Temperature Properties and Constitutive Equations for 1 Cr-½ Mo Steel (77-PVP-50) **PVT 246**

Hijikata, K. Experimental Study on Bubble Nucleation in the Oscillating Pressure Field (77-HT-22) **HT 460**

Hinge Clearance
Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) **MD 732**

Hinged Beam
The Large Amplitude Vibration of a Hinged Beam (BN) **AM 959**

Hirleman, E. D. Combined Conduction-Radiation Heat Transfer Through and Irradiated Semi-transparent Plate (TN) **HT 169**

Hirota, A. Analytical Prediction of Three Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) **I 222**; Part 2: Chip Formation and Cutting Force With Conventional Single-Point Tool (77-WA/Prod-10) **I 229**

Hirsch, Ch. Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (D) **P 286**; An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (D) **P 688**; (AC) **P 689**; Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (D) **F 250**; (AC) **F 252**

Hishida, M. Simultaneous Measurements of Velocity and Temperature in Nonisothermal Flows **HT 340**

Hitomi, K. Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/Prod-32) **I 468**; Machine Loading and Product-Mix Analysis for Group Technology **I 370**

Ho, T. L. Wear Studies on Aircraft Brake Materials **L 98**

Hob Profile
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 1 Analysis (77-DET-52) **MD 382**

Hob Steel Gears
A Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) **MD 470**

Hockley, B. S. Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) **P 655**

Hodder, R. S. Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) **L 226**; (D) **L 232, 233**; (AC) **L 234**

Hodge, P. G., Jr. Elastic-Plastic Plate With Arbitrary Poisson's Ratio (BN) **AM 205**; A Slip Model for Finite-Element Plasticity **AM 527**

Hodges, J. L. Prediction of Temperature Profiles in Fluid Bed Boilers (76-HT-66) **HT 508**

Hodgetts, D. Torsional Vibrations of a Vehicle Drive Line (77-DET-24) **MD 644**

Hoenig, A. Mechanical Response of the Lungs at High Frequencies **BE 57**

Hoff, N. J. Rules and Methods of Stress and Stability Calculations in the Presence of Creep (DDM) **AM 669**

Hoke, R. C. Prediction of Temperature Profiles in Fluid Bed Boilers (76-HT-66) **HT 508**

Holes
Adiabatic Wall Temperature and Heat Transfer Downstream of Injection Through Two Rows of Holes (77-GT-50) **P 303**
On the Dynamic Expansion of a Circular Hole in an Infinite Plate of Rate-Sensitive Plastic Material **AM 67**
The Dynamic Hole Expansion Problem for a Plate of Elastic-Perfectly Plastic Material (BN) **AM 961**
Measurement of the Elastic-Plastic Boundary Around Cold-worked Fastener Holes (78-WA/APM-2) **AM 515**
Quarter Elliptical Cracks Emanating From Holes in Plates **MT 144**
Reduction of Stress Concentration Due to Interference Fits in an Infinite Plate With Two Holes **PVT 369**
Residual Strains Around Coldworked Fastener Holes **MT 310**
Riemann-Integral Solutions for the Plastic Slip-Line Fields Around Elliptical Holes (BN) **AM 678**
Stress-Concentration Factors for a Countersunk Hole in a Flat Bar in Tension and Transverse Bending (DDM) **AM 929**
Stress Concentration in a Stretched Cylindrical Shell With Two Elliptical Holes (78-WA/APM-18) **AM 839**
Temperatures in an Anisotropic Sheet Containing an Insulated Elliptical Hole (TN) **HT 553**
Vibration Analysis of Circular Plates With Eccentric Hole (BN) **AM 215**

Holland, R. W. Collapse Test of a Thin-Walled Cylindrical Pressure Vessel with Radially Attached Nozzle **PVT 131**

Hollands, K. G. T. Free Convection across Inclined Air Layers with One Surface V-Corrugated **HT 410**; Heat Transfer by Natural Convection Between a Vertical Surface and a Stably Stratified Fluid (TN) **HT 378**

Hollow Disk Forging
Limit Analysis of Hollow Disk Forging: Part 1: Upper Bound (77-WA/Prod-2) **I 340**; (D) (AC) **I 345**; Part 2: Lower Bound (77-WA/Prod-3) **I 347**; (D) (AC) **I 345**

Hollow Rolling Elements
Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) **L 39**

Hollow Symmetrical Blades
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) **MD 183**

Holtworth, B. R. Heat Transfer From Arrays of Impinging Jets with Large Jet-to-Jet Spacing (78-GT-117) **HT 352**

Holmes, A. G. The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) **MD 156**

Holmes, P. J. Deterministic Stability Analysis of a Wind Loaded Structure **AM 165**; Pipes Supported at Both Ends Cannot Flutter **AM 619**

Hologram Reconstructions
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) **P 655**

Holoyen, S. Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/PROD-22) **I 119**

Holt, M. *(author)* Numerical Methods in Fluid Dynamics (BR) **DS 161**; **AM 704**

Homing Missile System
Some Sufficient and Some Necessary Conditions for the Stability of Multivariable Systems **DS 214**

Homogeneous Dispersive Media
Elastic Dispersion, Homogeneous Dispersive Media and an Application to Periodic Elastic Media **AM 337**

Homogeneous Gas
On the Flow Regimes of Downhole Flow of a Gas-Particle Mixture **F 410**

Homogeneous Nucleation
Experimental Study on Bubble Nucleation in the Oscillating Pressure Field (77-HT-22) **HT 460**

Homogeneous Plates
A High-Order Theory of Plate Deformation: Part 1: Homogeneous Plates (D) (AC) **AM 702**

Hooked Needle Device
A New Hooked Needle Device For Forming Fiber Beards For Length and Strength Measurement (77-Tex-2) **I 5**

Hopf Bifurcations
Bifurcations in Dynamical Systems With Internal Resonance (78-WA/APM-12) **AM 895**
The Hopf Bifurcation and Its Application (BR) **AM 234**

Horgan, C. O. Harmonic Waves in Layered Composites: New Bounds on Eigenfrequencies (78-WA/APM-23) **AM 829**

Horiuchi, A. A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) **MD 451**

Horiuchi, S. Design and Development of a High-Pressure

Combustor for Aero-Gas-Turbines (77-GT-96) **P 129**

Horizontal Beam
The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity **AM 643**

Horizontal Blasius Flow
Experiments on the Onset of Longitudinal Vortices in Horizontal Blasius Flow Heated from Below **HT 71**

Horizontal Boundary
Convection in an Enclosure-Source and Sink Located Along a Single Horizontal Boundary **HT 205**

Horizontal Cavities
Laminar Natural Convection Heat Transfer in a Horizontal Cavity with Different End Temperatures **HT 641**

Horizontal Circular Tube
Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**

Horizontal Cylinders
Natural Convection in a Horizontal Porous Medium Subjected to an End-to-End Temperature Difference **HT 191**

Horizontal Cylindrical Annulus
Partial Spectral Expansions for Problems in Thermal Convection **HT 435**

Horizontal Cylindrical Surface
A Local Nonsimilarity Analysis of Free Convection From a Horizontal Cylindrical Surface (TN) **HT 165**

Horizontal Ducts
Laminar Free Convection Heat Transfer through Horizontal Duct Connecting Two Fluid Reservoirs at Different Temperatures (TN) **HT 725**

Horizontal Fluid Layer
Correlation Equations for Turbulent Thermal Convection in a Horizontal Fluid Layer Heated Internally and from Below **HT 416**

Horizontal In-Tube Condensation
Augmentation of Horizontal In-Tube Condensation by Means of Twisted-Tape Inserts and Internally Finned Tubes **HT 17**

Horizontal Isothermally Heated Plate
An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition from Laminar Forced Convection to Turbulent Free Convection over a Horizontal Isothermally Heated Plate **HT 429**

Horizontal Planes
Nonlinear Kinematics of Wheel-Rail Contact **AM 664**

Horizontal Surfaces
An Investigation of the Minimum Film Boiling Temperature on Horizontal Surfaces **HT 260**
A Realistic Solution of the Symmetric Top Problem (78-WA/APM-20) **AM 903**

Horizontal Tube
Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**
The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**
Tube Wall Temperatures of an Eccentrically Located Horizontal Tube within a Narrow Annulus (TN) **HT 548**

Horizontal Wire
Transient Free Convection from a Suddenly Heated Horizontal Wire **HT 423**

Hornbuckle, J. C. Equivalence of a Constrained Minimum Weight and Maximum Column Buckling Load Problem With Solution **AM 159**

Horne, R. N. Convection in a Porous Medium Heated from Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient (77-HT-58) **HT 448**

Horner, G. C. The Riccati Transfer Matrix Method (77-DET-32) **MD 297**

Horvay, G. Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) **HT 281**

Hot-Film Anemometers
Effect of Flow Direction on Calibration of Hot-Film Anemometers at Low Velocities (TN) **HT 381**

Hot Reactive Gases
Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) **HT 531**

Hot Strip Rolling
A Comparative Study of Various Empirical Relations Applicable in Hot Strip Rolling (TB) **MT 430**

Hot Walls
Transient Temperature Profile of a Hot Wall Due to an Impinging Liquid Droplet (TN) **HT 167**

Hot Water Response
Early Response of Hot Water to Sudden Release from High Pressure **HT 473**

Hot Water Storage
A Parametric Study of Hot Water Storage for Peak Power Generation **P 229**

Hourglass Worm
Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) **MD 460**

Hourglass Worm Gearing
A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) **MD 451**

Howard, J. H. G. Measurements of Skewed Boundary Layers in a Curved Duct With Variation in Streamwise Pressure Gradient (TB) **F 124**; Quasi Two-Dimensional Analysis of a Flow Through a Centrifugal Pump Impeller (D) (AC) **F 248**

Howell, A. R. A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) **P 698**

Hsieh, T. C. Shock Tube Measurements of Carbon Dioxide in the 2 7 Micron Region (Er) **HT 689**

Hsu, T-K. A Simple Dynamic Model for Simulating Draft-Gear Behavior in Rail-Car Impacts (78-RT-2) **I 492**

Huang, N. C. Finite Extension of an Elastic Strand With a Central Core (78-WA/APM-7) **AM 852**

Huang, R. C. Sensitivity and Optimal Design of a Mechanical System With Intermittent Motion (77-DET-3) **MD 492**; (D) (AC) **MD 498**

Hub Fairings
The Effect of Hub Fairings on Wind Turbine Rotor Performance (TB) **F 120**

Hubbard, G. L. Infrared Mean Absorption Coefficients of Luminous Flames and Smoke **HT 235**

Huber, P. W. Experimental Tests of the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 605**; On the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 601**

Huckstep, F. L. Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) **P 497**

Hudak, S. J. Hydrogen Embrittlement of Austenitic Stainless Steel Weld Metal With Special Consideration Given to the Effects of Sigma Phase **PVT 424**

Huey, L. J. A Yaw-Insensitive Static Pressure Probe **F 229**

Hughes, D. A. Fatigue Design Criterion for Pressure Vessel Alloys (D) **PVT 236**

Hughes, T. J. R. Finite-Element Methods for Nonlinear Elastodynamics Which Conserve Energy **AM 366**; Implicit-Explicit Finite Elements in Transient Analysis: Implementation and Numerical Examples **AM 375**; Stability Theory **AM 371**

Hughes, W. F. Phase Change in Liquid Face Seals (77-Lub-12) **L 74**; (D) (AC) **L 79**

Hull, M. L. Analysis of Leg Loading in Snow Skiing **DS 177**

Huttgren, B. Kinematics of Jaw Growth (77-WA/Bio-15) **BE 93**

Human Brain Tissue
Nonlinear Constitutive Relations for Human Brain Tissue **BE 44**; (Er) **BE 66**

Human Head-Neck System
Response of a Realistic Human Head-Neck Model to Impact **BE 25**

Human Heart
Left Ventricular Function: Correlation With Deformation of the Myocardium (77-WA/Bio-11) **BE 99**; (D) (AC) **BE 104**

Human Jaw Growth
Kinematics of Jaw Growth (77-WA/Bio-15) **BE 93**

Human Joint Systems
Graphical Interpretation of the Solution to the Redundant Problem in Biomechanics **BE 159**

Human Knee Joint
A Method for Locating an Optimal "Fixed" Axis of Rotation for the Human Knee Joint **BE 187**

Human Leg
Determining Muscle Forces in the Leg During Normal Human Walking—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) **BE 72**

Human Leg Loading
Analysis of Leg Loading in Snow Skiing **DS 177**

Human Lungs
Mechanical Response of the Lungs at High Frequencies **BE 57**

Human Microcirculation
Red Cell Motion and Deformation in the Microcirculation **BE 139**

Hundal, M. S. Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) **MD 236**

Hunston, D. L. Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) **MT 25**

Hunt, J. P. The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments **PVT 297**

Hunter, T. O. Assessment of Surface-Heating Problems in Laser-Fusion Reactors **HT 311**

Hunting Stability
Hunting Stability of the Three Axle Locomotive Truck (78-RT-6) **I 483**

Hussain, A. K. M. F. The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments **PVT 297**

Huston, R. L. Dynamics of Multirigid-Body Systems (78-WA/APM-10) **AM 889**

Hutchinson, J. W. Analysis of Closure in Fatigue Crack Growth **AM 267**

Hwang, D. C. Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) **HT 665**

Hybrid Catalytic Combustor
Development of a Hybrid Catalytic Combustor **P 267**

Hybrid Dynamical Systems
A Comparative Study of Liapunov Stability Analyses of Flexible Damped Stellites **AM 657**

Hybrid Electric Power System
Battery-Flywheel Hybrid Electric Power System for Near-Term Application. Volume I. System Description (GR) **MD 203**; Volume 2. System Design (GR) **MD 204**

Hybrid Finite Elements
Finite Elasticity Solutions Using Hybrid Finite Elements Based on a Complementary Energy Principle (78-WA/APM-1) **AM 539**

Hybrid Transmissions
Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) **DS 24**

Hydraulic Actuators
Hydraulic Actuators for Active Optical Systems (GR) **MD 204**

Hydraulic Analogy
Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy **P 525**

Hydraulic Bulging
Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **MT 421**

Hydraulic Cracks
Gas Flow Through Cracks **F 453**

Hydraulic Dampers
Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) **MD 236**

Hydraulic Horsepower
Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) **PVT 172**

Hydraulic Losses
Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**
Influence of Volute Surface Roughness on the Performance of a Centrifugal Pump **F 473**

Hydraulic Pump
Investigation of a 30,000-RPM Turbine-Speed Hydraulic Pump **MD 206**

Hydraulic Spool Servovalve
An Analysis of the Three-Way Underlapped Hydraulic Spool Servovalve **DS 117**

Hydraulic Systems
Experiments on the Dynamic Behavior of Cavitating Pumps **F 166**

Hydraulic Valve
Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**

Hydraulically Induced Fractures
Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Rock Masses **PVT 277**

Hydraulics
A Brief History of Electrohydraulic Servomechanisms **DS 110**
Flow in Finite-Width, Thrust Bearings Including Inertial Effects Part I—Laminar Flow **L 330**; Part II—Turbulent Flow **L 339**
Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) **L 81**; (D) (AC) **L 90**
On the Roughness Effect in Hydrodynamic Lubrication **L**

176; (D) (AC) **L 180**

Hydrocarbons
Development of a Hybrid Catalytic Combustor **P 267**
The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) **P 640**

Hydrodynamic Entry Length
A Correlation for Laminar Hydrodynamic Entry Length Solutions for Circular and Noncircular Ducts **F 177**

Hydrodynamic Forces
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) **MD 549**

Hydrodynamic Lubrication
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) **L 287**; (D) **L 294**; (AC) **L 295**
An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) **L 12**

Hydrodynamic Stability
Hydrodynamic Stability in Horizontal Fluid Layers with Uniform Volumetric Energy Sources (TN) **HT 729**
Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**

Hydrodynamical Force
On the Exact Solution for the Two-Sphere Problem in Axisymmetrical Potential Flow **AM 463**

Hydrodynamics
Heat Transfer Phenomenology of a Hydrodynamically Unstable Melting System **HT 395**
Marine Hydrodynamics (BR) **AM 457**

Hydrofoils
Leading-Edge Correction for the Supercavitating Flat-Plate Hydrofoil (77-FE-21) **F 276**; (D) (AC) **F 280**
A Partially Cavitating Hydrofoil of Finite Span **F 353**

Hydrofracture Mapping
Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) **PVT 24**

Hydrogen Gas
Hydrogen Gas Generation in Water Heat Pipes **MT 313**

Hydrogen Sulfide
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) **P 520**

Hydrostatic Extrusion
Deformation of Polymers During Hydrostatic Extrusion **PVT 400**

Hydrostatic Loading
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) **I 249**
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) **I 273**

Hydrostatic Pressure
Buckling of Short Cylinders Under Combined Loading **AM 574**
Mechanical Behavior of Nonlinear Visco-Elastic Celluloid Under Superimposed Hydrostatic Pressure **PVT 271**
Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) **I 261**; (D) **I 271**; (AC) **I 272**

Hydrostatic Pressure Effects
Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) **L 379**; (D) (AC) **L 384**

Hydrostatic Pressures
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) **P 363**

Hydrostatic Thrust Bearing
On the Influence of Finite Wall Conductance and Inertia Effects of Hydrostatic Thrust Bearing **L 271**

Hydrothermal Cements
Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) **PVT 34**

Hyllender, D. Power Spectral Density for Constrained Long Wavelength Guideway Irregularities (77-WA/Aut-13) **DS 18**

Hyperbaric Chambers
Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) **BE 1**

Hyperbolic Sine Creep
A Flow Potential Function for Hyperbolic Sine Creep (BN) **AM 679**

Hypothermia
Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) **BE 7**

Hysteresis
The Response of an Oscillator With Bilinear Hysteresis to Stationary Random Excitation **AM 923**

Hysteretic Behavior
The Steady State Response of Systems With Hardening Hysteresis (77-DET-71) **MD 193**

Hysteretic Energy Loss
The Effect of Material Constitutive Models on Stress Wave Propagation Calculations (77-WA/Mat-8) **MT 84**

Hysteretic System
Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique **AM 393**

I

Iachetta, F. A. Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) **P 497**

Ibrahim, R. A. Stationary Response of a Randomly Parametric Excited Nonlinear System (78-WA/APM-13) **AM 910**

Identification Method Development
Identification of Machining System Dynamics by Equation Error Minimization (77-WA/PROD-44) **I 332**; (D) (AC) **I 339**

Ieong, L. On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillation of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**

Impact
Analysis of Minimum Crush Deformation in Impact of Vehicles of Different Weight Classes (TB) **I 294**
Response of a Realistic Human Head-Neck Model to Impact **BE 25**

Impact Absorbers
Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) **MD 236**

Impact Buckling
Axial Impact Buckling of a Column With Random Initial Imperfections **AM 361**
Impact Buckling of Thin Bar Via Monte Carlo Method **AM 586**

Impact Excitation
Rotational Vibration With Backlash: Part 1 (77-DET-105) **MD 363**

Impact Forming Machines
Determination of Dynamic Characteristics of an Impact Forming Machine Structure (77-WA/Prod-5) **I 434**
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/PROD-1) **I 113**

Impact Load
Dynamics of Viscoelastic Plate With Curved Boundaries of Arbitrary Shape **AM 629**

Impact Properties
Comparison of Dynamic Tear and Charpy-V-Notch Impact Properties of Plate Steels **MT 204**

Impact Testing
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**

Impact Toughness
Notch Effects, Stress State, and Ductility **MT 348**

Impact Wear
Impact Wear of Materials (BR) **AM 458**

Impeller Blades
Experiments on the Dynamic Behavior of Cavitating Pumps **F 166**
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**

Impeller Passages
Influence of Volute Surface Roughness on the Performance of a Centrifugal Pump **F 473**

Impeller Stalling
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) **P 592**; (D) **P 601-602**; (AC) **P 602**

Impinging Jets
Heat Transfer From Arrays of Impinging Jets With Large Jet-to-Jet Spacing (78-GT-117) **HT 352**

Implementation Approach
Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 1: Implementation **AM 595**; Part 2: Error Propagation **AM 603**

Implicit-Explicit Finite Element
Implicit-Explicit Finite Elements in Transient Analysis: Implementation and Numerical Examples **AM 375**
Implicit-Explicit Finite Elements in Transient Analysis: Stability Theory **AM 371**

Impulse Blade Cascades
Investigations on Impulse Blade Cascades With Medium Deflection (78-GT-12) **P 432**

Impulse Loads
Elastic-Plastic Response of 304 Stainless Steel Beams to Impulse Loads (BN) **AM 685**

Impulsive Excitation
Propagation Fronts Arising From the Impulsive Excitation of Orthogonally Woven Cloth and Nets (BN) **AM 957**

Impulsive Loading
Sensitivity Analysis and Optimal Design of a Mechanical System With Intermittent Motion (77-DET-3) **MD 492**; (D) (AC) **MD 498**

Impulsive Loads
The Effect of Spatial Distribution on Dynamic Snap-Through **AM 612**

Imura, H. An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition From Laminar Forced Convection to Turbulent Free Convection Over a Horizontal Isothermally Heated Plate **HT 429**; Experiments on the Onset of Longitudinal Vortices in Horizontal Blasius Flow Heated From Below **HT 71**

Imura, T. Variables Influencing Degradation of SiC Abrasive Papers **L 501**

Inaba, H. Heat Transfer in a Cavity Packed With Fibrous Glass (TN) **HT 748**

Incipient Boiling Point
Determination of Void Fraction, Incipient Point of Boiling, and Initial Point of Net Vapor Generation in Sodium-Heated Helically Coiled Steam Generator Tubes **HT 268**

Inclined Air Layers
Free Convection Across Inclined Air Layers With One Surface V-Corrugated **HT 410**

Incompressible Flow
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) **P 618**
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**
The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Flow in Compressor Cascades (77-WA/FE-5) **F 22**
A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**

Incompressible Fluid
Laminar-Turbulent Flow in a Spherical Annulus **F 281**

Incompressible Hydrostatic Pressure
Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) **L 379**; (D) (AC) **L 384**

Incompressible Turbulent Separating Flow
Prediction of Incompressible Turbulent Separating Flow (78-WA/FE-4) **F 427**

Incompressible Viscous Fluid Motion
Steady Flow in Tubes of Slowly Varying Cross Section **AM 475**

Incremental Finite-Element Formulations
Finite Elasticity Solutions Using Hybrid Finite Elements Based on a Complementary Energy Principle (78-WA/APM-1) **AM 539**

Incremental Plasticity Models
Cyclic Plasticity for Nonproportional Paths: Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) **MT 104**

Indentation Process
Spherical Indentation of Nonhomogeneous Materials (BN) **AM 944**

Indentation Tests
Indentation of a Membrane on an Elastic Half Space **AM 320**

Induced Pressures
Vortex Motion and Induced Pressures in a Model of the Aortic Valve **BE 216**

Induction Heating
Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/PROD-22) **I 119**

Inductively Heated Particle Beds
Natural Convection Heat Transfer in Beds of Inductively Heated Particles **HT 78**

Industrial Equipment
Reliability of Machinery Using Fatigue Damage Accumula-

tion Due to Random Vibrations (77-WA/DE-16) **MD 519**

Industrial Gas Turbines
Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) **P 704**
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) **P 576**
Progress on Ceramic Rotor Blade Development for Industrial Gas Turbine (77-GT-42) **P 58**

Industrial Plant Conversion
Considerations When Converting Industrial Plants to Coal Firing (77-IPC-Fu-1) **P 374**

Inelastic Deformation
Numerical Analysis of Time-Dependent Inelastic Deformation in Metallic Media Using the Boundary-Integral Equation Method **AM 785**

Inelastic Properties
A State Variable Interpretation of Some Rate-Dependent Inelastic Properties of Steel **MT 395**

Inelastic Response
Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates **AM 521**

Inelastic Structural Response
Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**

Inelastic Tensile Response
An Analysis of High Temperature Metal Creep Part I: Experimental Definition of an Alloy **MT 363**

Inertia Effects
On the Influence of Finite Wall Conductance and Inertia Effects of Hydrostatic Thrust Bearing **L 271**

Inertia Power
Model Formulation of Complex Mechanisms With Multiple Inputs: Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) (AC) **MD 761**

Infinite Elastic Body
Harmonic Wave Propagation in a Periodically Layered, Infinite Elastic Body: Antiplane Strain **AM 343**

Infinite Elastic Medium
Dynamic-Stress Concentration Around Two Coplanar Griffith Cracks in an Infinite Elastic Medium **AM 803**

Infinite Elastic Strip
An Elastic Strip Pressed Against an Elastic Half Plane by a Steadily Moving Force **AM 89**

Infinite Journal Bearings
Squeeze Film Flow in Arbitrarily Shaped Journal Bearings Subject to Oscillations **L 323**

Infinite Layer Thickness
The Sliding of a Rigid Indentor Over a Power Law Viscoelastic Layer **AM 111**

Infinite Plate
On the Dynamic Expansion of a Circular Hole in an Infinite Plate of Rate-Sensitive Plastic Material **AM 67**
Reduction of Stress Concentration Due to Interference Fits in an Infinite Plate With Two Holes **PVT 369**

Infinitely Long Plates
Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**

Inflated Cantilevers
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**

Inflated Spherical Membrane
On the Contact of Problem of a Highly Inflated Spherical Nonlinear Membrane (BN) **AM 202**

Infrared Radiation
Accurate Spectral Modeling for Infrared Radiation (77-HT-69) **HT 240**
Infrared Mean Absorption Coefficients of Luminous Flames and Smoke **HT 235**

Ingots
Shape of Two-Dimensional Solidification Interface During Directional Solidification by Continuous Casting **HT 3**

Inhomogeneities
Effect of Inhomogeneities and Finite Boundaries on Temperature Distributions in a Perfused Medium, With Application to Tumors **BE 235**

Inhomogeneous Structure
Elastic Dispersion, Homogeneous Dispersive Media and an Application to Periodic Elastic Meda **AM 337**

Initial-Boundary Data
Determination of Unknown Coefficients in Parabolic Operators from Overspecified Initial-Boundary Data **HT 503**

Initial Imperfection Function
Axial Impact Buckling of a Column With Random Initial Imperfections **AM 381**

Impact Buckling of Thin Bar Via Monte Carlo Method **AM 586**

Initial Stress
Application of Stress Functions to Initial Stress Problems **AM 350**

Initial Value Problems
Construction of Integration Formulas for Initial Value Problems (BR) **AM 233**

Injection Geometry
Adiabatic Wall Temperature and Heat Transfer Downstream of Injection Through Two Rows of Holes (77-GT-50) **P 303**

Injection Pressure
An Investigation of the Influence of Back Pressure on the Diffusion of Mass and Momentum of Fuel in Diesel Spray **P 241**

Inlet Distortion Problem
Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**

Inlet Dynamics
Analytical Modeling of Helical Screw Turbines for Performance Prediction **P 482**

Inlet Profile
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) **P 444**

Inner Radius Expansion
Inner Radius Expansion of Cylinder or a Sphere Under Cold Working (BN) **AM 198**

Inner Surface Defects
Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**

Inoue, K. Bending of Slub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) **MD 374**

Inoue, M. Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**

Inoue, N. Deformation of Polymers During Hydrostatic Extrusion **PVT 400**

Inservice Inspection Rules
Rules for Inservice Inspection for Nuclear Power Plant Components **PVT 313**

In-Situ Gasification
An Assessment of Overburden Stability in the In-Situ Gasification of Texas Lignite **PVT 285**

In Situ Stress Measurement
Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) **PVT 24**

Instability
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) **MD 558**
Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) **MD 520**
Dynamic Plastic Instabilities in Stretching Plates and Shells **AM 105**
Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**
Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) **MD 347**
Influence of Unequal Pedestal Stiffness on the Instability Regions of a Rotating Asymmetric Shaft **AM 400**
Instability of Elastically Suspended Tainter-Gate System Caused By Surface Waves on the Reservoir of a Dam (D) **F 140**; (AC) **F 141**
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) **MD 328**
The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity **AM 643**
Review—Self-Sustaining Oscillations of Flow Past Cavities **F 152**
Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) **MD 26**
Some Experiments of Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) **MD 147**
Structural Designing With Ceramic Materials **P 260**
Thermal Instability of a Volumetrically-Heated Pool With Phase Change and a Free Upper Surface (TN) **HT 376**
Time-Dependent Double-Diffusive Instability in a Density-Stratified Fluid Along a Heated Inclined Wall (78-HT-43) **HT 653**
Use of Dynamic Absorbers to Control Parametric Instabilities of a Pipe (BN) **AM 949**
Wave Propagation and Instability in a Circular Semi-Infinite Liquid Jet Harmonically Forced at the Nozzle **AM 469**

Instability Analysis
First-Order Pump Surge Behavior (77-WA/FE-12) **F 459**

Instability Conditions
Determination of Void Fraction, Incipient Point of Boiling, and Initial Point of Net Vapor Generation in Sodium-Heated Helically Coiled Steam Generator Tubes **HT 258**

Instantaneous Invariants
Instantaneous Invariants in Three-Dimensional Kinematics **AM 409**

Instrument Ball Bearings
Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) **L 386**; (D) **L 393**; (AC) **L 394**

Insulated Elliptical Hole
Temperatures in an Anisotropic Sheet Containing an Insulated Elliptical Hole (TN) **HT 553**

Integrability Criterion
Carathéodory Controllability Criterion for Nonlinear Dynamical Systems **DS 209**

Integral Channel
Design Curves for Stress Analysis of U-Tube Heat Exchanger Tubesheet With Integral Channel and Head **PVT 221**

Integral Coordinates
A Comparative Study of Liapunov Stability Analyses of Flexible Damped Satellites **AM 657**

Integral Equation Methods
Stress Concentration in a Stretched Cylindrical Shell With Two Elliptical Holes (78-WA/APM-18) **AM 839**
Integral Equation Methods in Potential Theory and Elastostatics (BR) **AM 966**

Integral Equations
Analysis of Branched Cracks **AM 797**

Integral Form
On the Exact Solution for the Two-Sphere Problem in Axisymmetrical Potential Flow **AM 463**

Integral Model
An Analysis of High Temperature Metal Creep Part II: A Constitutive Formulation and Verification **MT 371**

Integral Solutions
Riemann-Integral Solutions for the Plastic Slip-Line Fields Around Elliptical Holes (BN) **AM 678**

Integration Formulas
Construction of Integration Formulas for Initial Value Problems (BR) **AM 233**

Integrator System
Quasi-Time-Optimal Feedback Control of Some Fifth-Order Systems **DS 201**

Interactive Behavior
Buckling of Short Cylinders Under Combined Loading **AM 574**

Interface Cracks
The Interface Crack (D) (AC) **AM 700**
The Interface Crack in a Shear Field **AM 287**

Interface Curvature Effects
The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**

Interface Waves
Elastic Interface Waves Involving Separation (D) **AM 226**; (AC) **AM 227**
Elastic Interface Waves and Sliding Between Two Solids **AM 325**

Interfacial Stresses
Dynamically Induced Interfacial Stresses in Fibrous Composites (BN) **AM 442**

Interference-Fitted Ring
Reduction of Stress Concentration Due to Interference Fits in an Infinite Plate With Two Holes **PVT 369**

Interferometric Deformation Measurement
Interferometric Deformation Measurement of Elastohydrodynamically Loaded Surfaces (TB) **L 508**

Interior Plate Elements
Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**

Interline Heat Transfer
The Effect of the London-Van Der Waals Dispersion Force on Interline Heat Transfer **HT 155**

Intermittent Motion
Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) **MD 492**; (D) (AC) **MD 498**

Internal Axial Flow
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) **MD 328**

Internal Ballistics
Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) **PVT 194**
Internal Barriers
On the Uniqueness and Stability of Endochronic Theories of Material Behavior **AM 263**
Internal Boiler Tubes
Prediction of Temperature Profiles in Fluid Bed Boilers (76-HT-66) **HT 508**
Internal Crack
Combined Mode Fracture Toughness Measurement by the Disk Test **MT 175**
The Problem of Internal and Edge Cracks in an Orthotropic Strip (D) **AM 228**
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) **AM 281**
Internal Pressure
An Experimental Study of Progressive Strain Growth Due to Thermal-Stress Ratcheting **MT 150**
Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**
Pressurized Cylindrical Shell With a Rigid Circular Inclusion **PVT 158**
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) **PVT 134**
Internal Resonance
Bifurcations in Dynamical Systems With Internal Resonance (78-WA/APM-12) **AM 895**
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**
Internal Solidification
The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**
Internal State Assumptions
On the Behavior of Acceleration Waves in Elastic Dielectrics With Internal State Variables **AM 745**
Internally Finned Tubes
Augmentation of Horizontal In-Tube Condensation by Means of Twisted-Tape Inserts and Internally Finned Tubes **HT 17**
Internally Pressurized Shells
Elastic and Elastic-Plastic Buckling of Internally Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) **PVT 335**
International Bibliographies
International Bibliographies **DS 96**; **DS 157**; **DS 229**; **DS 343**
Intershaft Squeeze Film Dampers
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) **MD 558**
Inter-Shroud Segment Rubbing
An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies to Inter-Shroud Segment Rubbing (77-DET-73) **MD 222**
In-Tube Condensation
Augmentation of Horizontal In-Tube Condensation by Means of Twisted-Tape Inserts and Internally Finned Tubes **HT 17**
Inui, E. Pool Boiling Heat Transfer to Emulsions **HT 613**
Inverse Scattering
Noninvasive Inference of Airway Network Geometry From Broadband Lung Reflection Data **BE 131**
Inviscid Rotational Flow
Inviscid Rotational Flow Through Sprays (BN) **AM 934**
In-Vivo
In-Vivo Mechanical Properties of Soft Tissue Covering Bony Prominences **BE 194**
Ion-Bombarded Surfaces
Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) **MD 16**
Ion-Plated Thin Films
Ion-Plated Thin Films for Anti-Wear Applications **L 129**
Iron-Base Alloys
Effect of Structure on Wear Resistance of Co-, Fe-, and Ni-Base Alloys **L 428**
Iron Ore Drilling
Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) **PVT 74**
Irradiated Semi-transparent Plate
Combined Conduction-Radiation Heat Transfer Through an Irradiated Semi-transparent Plate (TN) **HT 169**
Irradiation Creep
Irradiation Effects on the Behavior of Structural Materials at Elevated Temperature **MT 121**
Isaacson, R. J. Kinematics of Jaw Growth (77-WA/Bio-15) **BE 93**
Isentropic Flow
Choked Expansion of Subcooled Water and the I.H.E. Flow Model **HT 275**
Exact and Approximate Equations for Real-Fluid Isentropic Flow **F 413**
Isentropic Streamtubes
An Isentropic Streamtube Model for Flashing Two-Phase Vapor-Liquid Flow **HT 595**
Ishibashi, A. Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) **MD 440**
Ishida, K. Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) **MD 460**
Ishii, A. Design and Development of a High-Pressure Combustor for Aero-Gas-Turbines (77-GT-96) **P 129**
Ishii, K. Fatigue Strength and Maintenance of the Wheel-Axle Assembly for the Japanese Fast Train (Shinkansen) **MT 227**
Isothermal Elastohydrodynamic Lubrication
Isothermal Elastohydrodynamic Lubrication of Point Contacts Part IV-Starvation (D) (AC) **L 142**
Isothermal Plates
Linearized Stability Analysis of Film Condensation **HT 629**
Isothermal Plots
On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) **MT 319**
Isothermal Starved Film Thickness
The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact Part II: Starved Conditions **L 353**
Isothermal Starved Rolling Traction
An Approximate Equation for Predicting the Isothermal and Nonisothermal Starved Rolling Traction in an E.H.L. Line Contact **L 472**
Isothermally Heated Plate
An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition From Laminar Forced Convection Over a Horizontal Isothermally Heated Plate **HT 429**
Isotropic Metals
On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**
Isotropic Plane Stress
Effect of Stress-Free Edges in Plane Shear of a Rectangular Orthotropic Region **AM 307**
Isotropic Polyethylene
The Wear of High Molecular Weight Polyethylene—Part I: The Wear of Isotropic Polyethylene Against Dry Stainless Steel in Unidirectional Motion **L 208**
Isotropic Turbulence
Derivation of Turbulent Transport Parameters in Isotropic Turbulence (D) **F 139**; (AC) **F 140**
Isotropy
Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) **PVT 77**
Itao, K. Wide-Band Random Vibration of Circular Plates (77-DET-97) **MD 690**
Ito, S. Film Cooling of a Gas Turbine Blade **P 476**
Ito, Y. Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**
Itou, S. Dynamic Stress Concentration Around Two Coplanar Griffith Cracks in an Infinite Elastic Medium **AM 803**; Three-Dimensional Wave Propagation in a Cracked Elastic Solid **AM 807**
Ivanov, V. V. *(author)* The Theory of Approximate Methods and Their Application to the Numerical Solution of Singular Integral Equations (BR) **AM 230**
Iwaki, T. Reduction of Stress Concentration Due to Interference Fits in an Infinite Plate With Two Holes **PVT 369**
Iwan, W. D. Response Envelope Statistics for Nonlinear Oscillators With Random Excitation **AM 170**; *(reviewer)* Structural and Geotechnical Mechanics (BR) **AM 968** **968**
Iyengar, R. N. Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique **AM 393**
Iyer, P. A. Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) **HT 648**

J

J-Integral
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**
Elastic-Plastic R-Curves (78-Mat-12) **MT 258**
J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) **MT 248**
J-Integral Approach to Fracture of Rotating Disk **MT 128**
Leibnitz's Rule and the J-Integrals (BN) **AM 425**
Jabbari, M. Y. Adiabatic Wall Temperature and Heat Transfer Downstream of Injection Through Two Rows of Holes (77-GT-50) **P 303**
Jackson, A. Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) **L 304**; (D) (AC) **L 307**
Jacob, K. A. Photoelastic Analysis of a Composite Prism Subjected to Partial Compression (BN) **AM 436**
Jacox, J. O. A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) **P 691**; (D) (AC) **P 697**
Jain, M. L. Inviscid Rotational Flow Through Sprays (BN) **AM 934**
Jain, R. K. Effect of Inhomogeneities and Finite Boundaries on Temperature Distributions in a Perfused Medium, With Application to Tumors **BE 235**
Jakobsen, J. Interferometric Deformation Measurement of Elastohydrodynamically Loaded Surfaces (TB) **L 508**
Janach, W. Contrasting Fracture Models For Granite Under Dynamic Loading **MT 287**
Jankowski, D. F. Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**
Jaske, C. E. Influence of Selenium and Tellurium on the Fatigue of Low-Carbon Steel (TB) **MT 216**
Jaswon, M. A. *(author)* Integral Equation Methods in Potential Theory and Elastostatics (BR) **AM 966**
Jaumotte, A. L. Predetermination of the Relative Error on the Flow Coefficient of Orifice Meters in Nonstandard Approach Conditions **F 60**
Jaw Motion Analysis
Kinematics of Jaw Growth (77-WA/Bio-15) **BE 93**
Jay, R. L. Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) **P 664**; (D) (AC) **P 675**
Jendrzejczuk, J. A. Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) **MD 540**
Jeng, D. R. Laminar Boundary Layer Transfer Over Rotating Bodies in Forced Flow **HT 498**
Jennings, R. L. Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structures (77-DET-84) **MD 279**
Jerath, S. Boundary Conditions at a Cone-Cylinder Shell Junction (BN) **AM 938**
Jerk Limiting
Effects of Jerk Limiting on the Stability of Automated Transit Vehicles **DS 298**
Longitudinal Control of Automated Guideway Transit Vehicles Within Platoons **DS 302**
Jet Cavitation Tunnel
Constrained Flow Past Cavitating Bluff Bodies (D) **F 254**; (AC) **F 255**
Jet Cutting
High Energy Water Jet Cutting Equations for Wood (77-WA/PROD-18) **I 452**
Jet Engine Dynamics
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) **P 647**
Jet Entrainment
Measurement of Buoyant Jet Entrainment From Single and Multiple Sources (77-HT-43) **HT 442**
Jet Flow
Nonparallel Effects on the Stability of Jet Flows (78-WA/APM-16) **AM 717**
Solutions of Laminar Jet Flow Problems for Non-Newtonian Power-Law Fluids **F 363**; (D) (AC) **F 500**
The Velocity Characteristics of Ventilated Rooms **F 291**
Jet Lubrication
Study of Lubricant Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) **MD 61**; (D) **MD 68**; (AC) **MD 68**
Jet Penetration
Mixing Process Induced by the Vorticity Associated With the Penetration of a Jet into a Cross Flow **P 435**

Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/PROD-38) **I 88**

Jet Radius Variation

Wave Propagation and Instability in a Circular Semi-Infinite Liquid Jet Harmonically Forced at the Nozzle **AM 469**

Jet Spacing

Heat Transfer From Arrays of Impinging Jets With Large Jet-to-Jet Spacing (78-GT-117) **HT 352**

Jets

Developing Region of Laminar Jets With Uniform Exit Velocity Profiles **F 55**

The Effect of Buoyancy on the Turbulence Structure of Vertical Round Jets **HT 659**

Johns, T. G. Propagating Buckle Arrestors for Offshore Pipelines **PVT 206**

Johnson, E. R. The Effect of Spatial Distribution on Dynamic Snap-Through **AM 612**

Johnson, E. W. Hydrogen Embrittlement of Austenitic Stainless Steel Weld Metal With Special Consideration Given to the Effects of Sigma Phase **PVT 424**

Johnson, H. T. *(author)* Design and Evaluation of Advanced High-Speed Fuel Pump (GR) **MD 295**

Johnson, K. L. Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (D) **L 416**; (AC) **L 417**

Johnson, M. R. Summarization and Comparison of Freight Car Truck Load Data (77-WA/RT-3) **I 60**

Johnson, M. W. Second Flow in Rotating Bends **P 553**

Johnson, R. L. *(recipient)* Mayo D. Hersey Award **L 309**

Johnson, S. H. The Use of Sensitivity Functions to Match Matrix Transfer Functions to Time-Domain Performance Criteria **DS 187**; *(reviewer)* An Introduction to the Theory of Linear Systems (BR) **DS 162**; Nonlinear Systems Analysis (BR) **DS 161**

Johnson, W. S. Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) **MT 57**

Johnston, J. P. Calculation of Turbulent Shear Flows: Status and Ten-Year Outlook (Op) **F 3**; On Vortex Wind Power (D) **F 252**; (AC) **F 253**

Joint Torques

Use of Optimization Techniques to Predict Muscle Forces **BE 88**

Jointed Structure

Exoskeleton Prototype Project (GR) **MD 206**

Joints

A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) **PVT 91**

Jollies, M. I. Stress Intensity Factors for Reactor Vessel Nozzle Cracks **PVT 141**

Jones, C. K. Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) **MD 16**

Jones, D. G. Low NOx Combustion of Paraho Shale Oil in a 45 MW Utility Boiler (77-WA/Fu-1) **P 393**

Jones, O. C., Jr. Bubble Growth in Variable Pressure Fields **HT 453**

Jones, R. The Dynamic Analysis of Shallow Spherical Shells (BN) **AM 690**

Jönsson, H. Load Distribution in Timing Belts (77-DET-100) **MD 208**

Jordan, D. Development of Gas Turbine Performance Seeking Logic (78-GT-13) **P 571**; (D) (AC) **P 575**

Journal Bearings

An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) **L 287**; (D) **L 294**; (AC) **L 295**

Dynamic Characteristic of Multirecess Externally Pressurized Oil Journal Bearing **L 467**

Squeeze Film Flow in Arbitrarily Shaped Journal Bearings Subject to Oscillations **L 323**

Thermohydrodynamic Analysis for Laminar Flow Journal Bearing (TB) **L 510**

On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) **L 298**; (D) **L 302**; (AC) **L 303**

Wear in Lubricated Journal Bearings **L 104**

Journal Operations

Journal Operations (Ed) **MD 201**

Judd, R. L. On the Influence of Surface Conditions in Nucleate Boiling—the Concept of Bubble Flux Density **HT 618**; Influence of System Pressure on Microlayer Evaporation Heat Transfer **HT 49**; Spatial Distribution of Active Sites and Bubble Flux Density **HT 58**

Junction Cracks

Embedded Elliptical Crack at a Corner (78-PVP-5) **PVT 28**

Junkhan, G. H. Some Effects of Mechanically-Produced Unsteady Boundary Layer Flows on Convective Heat Transfer Augmentation **HT 25**

Juricic, D. Response of Collecting Plates in Electrostatic Precipitators Due to Shear Rapping (77-DET-98) **MD 105**

Jury, E. I. Stability Tests for One, Two, and Multidimensional Linear Systems **DS 105**

Just, Ch. Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) **P 704**

K

Kabaila, A. P. *(editor)* Finite Element Methods in Engineering (BR) **MD 591**

Kabo, M. Response of a Realistic Human Head-Neck Model to Impact **BE 25**

Kaczenski, E. S. Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) **HT 281**

Kahlen, H. *(author)* Comparative Measurement of Different Electric Drives for an Experimental Motor Vehicle (GR) **MD 204**

Kaimal, M. R. Peristaltic Pumping of a Newtonian Fluid With Particles Suspended in It at Low Reynolds Number Under Long Wavelength Approximations **AM 32**

Kalila, W. Vertical Channel Parallel Flow Modification Associated With Density Extremum (TB) **F 128**

Kameswara Rao, C. V. S. Spherical Indentation of Nonhomogeneous Materials (BN) **AM 944**

Kane, T. R. A Realistic Solution of the Symmetric Top Problem (78-WA/APM-20) **AM 903**; Successive Finite Rotations (BN) **AM 945**

Kannel, J. W. A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) **L 110**; A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) **L 395**

Kanzawa, M. J-Integral Approach to Fracture of Rotating Disk **MT 128**

Kapur, V. K. On the Influence of Finite Wall Conductance and Inertia Effects of Hydrostatic Thrust Bearing **L 271**

Kar, S. An Investigation of the Influence of Back Pressure on the Diffusion of Mass and Momentum of Fuel in Diesel Spray **P 241**

Karimi, A. H. Corresponding States Correlations of the Extreme Liquid Superheat and Vapor Subcooling (77-HT-20) **HT 492**

Karmakar, B. M. Nonlinear Vibrations of Orthotropic Plates Carrying Concentrated Mass (TB) **I 293**

Karnopp, D. A Bond Graph Modeling Philosophy for Thermofluid Systems **DS 70**; Pseudo Bond Graphs for Thermal Energy Transport **DS 165**

Karpati, G. Transition Behavior of a Blasius-Type Boundary Layer Subjected to Uniform Blowing or Suction (BN) **AM 450**

Kato, M. Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) **MD 374**

Kaul, R. K. Harmonic Wave Propagation in a Periodically Layered, Infinite Elastic Body: Antiplane Strain **AM 343**

Kaurajian, G. M. An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) **MD 614**

Kawahara, M. Shear Fracture Propagation by DCB Testing (77-Pet-33) **PVT 18**

Kawamura, H. Transient Temperature Profile of a Hot Wall Due to an Impinging Liquid Droplet (TN) **HT 167**

Kays, W. M. Experimental Heat Transfer Behavior of a Turbulent Boundary Layer on a Rough Surface With Blowing **HT 134**

Keane, M. J. Optimal Control of On-Board and Station Flywheel Storage for Rail Transit Systems **DS 284**

Kececioglu, D. Mechanical Reliability Confidence Limits (77-WA/DE-12) **MD 607**; (D) (AC) **MD 613**

Keck, L. J. Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) **PVT 24**

Keer, L. M. Stress Singularity at the Corner of a Wedge-Shaped Crack or Inclusion (78-WA/APM-6) **AM 791**

Kelly, R. E. Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) **HT 648**

Kempner, J. Modal Method for Free Vibration of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**

Kennedy, F. E. Two Temperature Gradients Model for Friction Failure (D) **L 484**; (AC) **L 485**

Kennedy, W. C. Phase Change in Liquid Face Seals (77-Lub-12) **L 74**; (D) (AC) **L 79**

Kenyon, D. E. Consolidation in Compressible Mixtures **AM 727**

Kern, J. On the Analogy Between the Calorimeter Problem and Some Granulate-Fluid Exchange Processes **HT 319**

Kerr, A. D. Determination of Admissible Temperature Increases to Prevent Vertical Track Buckling **AM 585**

Keyser, D. R. Analytical and Experimental Studies of ASME Flow-Nozzles (D) **F 274**; (AC) **F 275**

Khalid, S. *(author)* Automatic Design (GR) **MD 205**

Khalil, E. E. Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) **I 210**

Khan, M. R. Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) **MD 319**

Khurasia, H. B. Vibration Analysis of Circular Plates With Eccentric Hole (BN) **AM 215**

Kieda, A. Approximate Numerical Solutions for Two-Dimensional Potential Flow Problems (TB) **F 122**

Kilaparti, S. R. The Thermoelastic Patch Contact Problem for Large Peclet Number (77-Lub-32) **L 65**

Kinematic Boundary Constraint

A State-Constrained Approach to Vehicle-Follower Control for Short Headway Automated Transit Systems **DS 291**

Kinematic Hardening

Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) **PVT 344**

Kinematic Variable

Nonlinear Wrinkling of Nonlinear Membranes of Revolution **AM 533**

Kinematics

Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) **MD 599**

Dynamics of Multirigid-Body Systems (78-WA/APM-10) **AM 889**

Dynamics of Systems of Rigid Bodies (BR) **AM 458**

Instantaneous Invariants in Three-Dimensional Kinematics **AM 409**

Kinematics of Jaw Growth (77-WA/Bio-15) **BE 93**

Model Formulation of Complex Mechanisms With Multiple Inputs: Part 1—Geometry (77-WA/DE-9) **MD 747**; Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) (AC) **MD 761**

Nonlinear Kinematics of Wheel-Rail Contact **AM 664**

Kinetic Energy

A Bond Graph Modeling Philosophy for Thermofluid Systems **DS 70**

On the Exact Solution for the Two-Sphere Problem in Axisymmetrical Potential Flow **AM 463**

Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) **DS 24**

Prediction of Incompressible Turbulent Separating Flow (78-WA/FE-4) **F 427**

Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) **F 37**; (D) **F 45**; (AC) **F 43**

Turbulence Measurements in a Separated and Reattached Flow Over a Blunt Flat Plate **F 224**

Kinetics Variables

A Control Algorithm for Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**

Kingsbury, E. P. Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) **L 386**; (D) **L 393**; (AC) **L 394**

Kinra, V. K. A Reexamination of Miklowitz-Kolsky Model (BN) **AM 218**

Kipp, R. M. Thermal Damage and Rail Load Stresses in a 33-Inch Railroad Car Wheel (77-WA/RT-2) **I 363**

Kirk, P. A Portable Personal Cooling System for Mine Rescue Operations (77-ENAS-53) **I 53**

Kirson, Y. Instantaneous Invariants in Three-Dimensional Kinematics **AM 409**

Kirtley, J. L., Jr. Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) **MD 630**

Kitagawa, T. Analytical Prediction of Three Dimensional Cutting Process Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/PROD-11) **I 236**

Kleiner, R. N. Fracture Strength and Thermal Shock Resistance of Thick And Thin-Wall Magnesium-Aluminum-Silicate Ceramic Heat Regenerators

(77-GT-98) **P 136**

Kline, J. Calculation of Turbulent Shear Flows: Status and Ten-Year Outlook (Op) **F 3**

Kline, S. J. The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**; A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages **F 180**

Klompas, N. Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) **P 647**

Klosner, J. M. Three-Dimensional Elasticity Solution and Edge Effects in a Spherical Dome (D) **AM 700**; (AC) **AM 701**

Knight, W. A. Determination of Dynamic Characteristics of an Impact Forming Machine Structure (77-WA/Prod-5) **I 434**

Knops, R. J. *(reviewer)* Trends in Applications of Pure Mathematics to Mechanics (BR) **AM 456**

Kobayashi, A. S. Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**; Embedded Elliptical Crack at a Corner (78-PVP-5) **PVT 28**; *(reviewer)* Elastodynamic Crack Problems (BR) **AM 230**; *(reviewer)* Experimental Stress Analysis (BR) **AM 968**; *(reviewer)* Strength and Structure of Solid Materials (BR) **AM 231**

Kohser, R. A. Disk and Strip Forging With Side-surface Foldover—Part 1: Velocity Field and Upper-Bound Analysis (77-WA/PROD-36) **I 421**; Disk and Strip Forging With Side Surface Foldover—Part 2: Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) **I 428**; Limit Analysis of Hollow Disk Forging: Part 1: Upper Bound (D) (AC) **I 345**; Limit Analysis of Hollow Disk Forging: Part 2: Lower Bound (D) (AC) **I 345**

Komanduri, R. The Conflicting Roles of Carbontetrachloride as a Boundary Lubricant (77-WA/PROD-7) **I 244**

Komotori, K. Pool Boiling Heat Transfer to Emulsions **HT 613**

Konno, K. Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**

Kool, P. An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (D) **P 688**; (AC) **P 689**

Koram, K. K. Turbulent Heat Transfer Downstream of an Unsymmetric Blockage in a Tube **HT 588**

Koren Y. Flank Wear Model of Cutting Tools Using Control Theory (77-WA/PROD-20) **I 103**

Korhonen, A. S. On the Theories of Sheet Metal Necking and Forming Limits **MT 303**

Koshiga, F. Shear Fracture Propagation by DCB Testing (77-Pet-33) **PVT 18**

Kotval, C. J. Reducing the Temperature at Tool-Chip-Work Contact by Changing the Effective Thermal Conductivity of the Tool (TB) **I 387**

Kotzur, J. A Diffusion Factor Correlation for Centrifugal Impeller Stalling (D) (AC) **P 602**

Kounadis, A. N. Divergence Buckling of a Simple Frame, Subject to a Follower Force (BN) **AM 426**

Kouwen, N. Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**

Krafft, J. M. "Proof of the Pudding"; "Form Follows Function" (Ed) **MT 337**

Kragelskii, I. V. Methods of Decreasing Wear in Metal-Polymer Contacts **L 185**, (Er) **L 466**

Krajcinovic, D. Response of a Rigid-Plastic Circular Plate in Contact With Newtonian Fluid (BN) **AM 199**

Kraus, A. D. An Efficient Algorithm for Evaluating Arrays of Extended Surface **HT 288**

Krause, H. Wear of Titanium and Titanium Alloys Under Conditions of Rolling Stress **L 199**

Krazinski, J. L. A Model for Flame Propagation in Low Volatile Coal Dust-Air Mixtures (77-HT-18) **HT 105**

Kreitlow, D. B. Thermosyphon Models for Downhole Heat Exchanger Applications in Shallow Geothermal Systems **HT 713**

Krempl, E. Construction of Nonlinear Monotonic Functions With Selectable Intervals of Almost Constant or Linear Behavior (78-WA/APM-22) **AM 780**

Kremple, E. *(reviewer)* Viskoelastizität und Plastizität. Thermomechanisch Konsistente Materialgleichungen (Viscoelasticity and Plasticity. Thermomechanically Consistent Constitutive Equations). (BR) **AM 457**

Krieger, W. A New Cumulative Damage Model: Part 2 **AM 251**

Krier, H. A Model for Flame Propagation in Low Volatile Coal Dust-Air Mixtures (77-HT-18) **HT 105**

Krishna, M. B. Power Spectral Density for Constrained Long Wavelength Guideway Irregularities (77-WA/Aut-13) **DS 18**

Krishna Reddy, G. V. On the Flexural Rigidity of a Micropolar Elastic Circular Cylinder (BN) **AM 429**

Kronogard, S. O. Three-Shaft Automotive Turbine-Transmission Systems of the KTT Type—Performance and Features (77-GT-94) **P 95**

Kruse, A. Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) **MD 433**

Krzyzanowski, J. The Influence of Droplet Size on the Turbine Blading Erosion Hazard **P 561**

KTT System

Three-Shaft Automotive Turbine-Transmission Systems of the KTT Type—Performance and Features (77-GT-94) **P 95**

Ku, P. M. Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) **L 121**

Kubo, A. Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) **MD 77**

Kuehn, L. A. Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) **BE 7**

Kuehn, T. H. An Experimental Study of Natural Convection Heat Transfer in Concentric and Eccentric Horizontal Cylindrical Annuli **HT 635**; Radial Heat Transfer and Critical Biot Number With Radiation, Uniform Surface Heat Generation, and Curvature Effects in the Convection (TN) **HT 374**

Kuei, S. C. Rheological Equations for Synovial Fluids **BE 169**

Kullgren, T. E. Quarter Elliptical Cracks Emanating From Holes in Plates **MT 144**

Kumar, A. Optimization of Cold Rolling by Nonlinear Programming (77-WA/PROD-25) **I 186**

Kumar, V. Numerical Analysis of Time-Dependent Inelastic Deformation in Metallic Media Using the Boundary-Integral Equation Method **AM 785**

Kunio, T. *(editor)* Strength and Structure of Solid Materials (BR) **AM 231**

Kurihara, M. Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) **MD 507**; Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) **MD 514**

Kurita, Y. Shear Fracture Propagation by DCB Testing (77-Pet-33) **PVT 18**

Kuzay, T. M. Analytic Derivation of Static Pressure Distribution in Fully Developed Helical Flows **F 201**

Kuzo, D. M. *(reviewer)* Finite Element in Fluid Dynamics (BR) **DS 347**

Kwak, Y. K. Identification of the Dynamic Characteristics of a Bench-Type Automotive Seat for the Evaluation of Ride Quality **DS 42**

L

Labus, T. L. Liquid Jet Impingement Normal to a Disk in Zero Gravity (78-WA/FE-1) **F 204**

Labyrinth Seal Force

Air Model Tests of Labyrinth Seal Forces on a Whirling Rotor **P 533**

Laflen, J. H. An Analysis of High Temperature Metal Creep Part I: Experimental Definition of an Alloy **MT 363**; Part II: A Constitutive Formulation and Verification **MT 371**

Laforce, C. H. J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) **MT 248**

Lahoti, G. D. Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) **I 159**; A Numerical Method for Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/PROD-35) **I 413**

Lai, J. S. Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-WA/APM-3) **AM 507**

Lai, W. M. Rheological Equations for Synovial Fluids **BE 169**

Laird, A. D. K. Heat Transfer From a Cylinder Oscillating in a Cross-Flow **HT 684**

Lakshmana Rao, N. S. Loss Characteristics of Orifices and Nozzles **F 299**

Lakshminarayana, B. An Experimental Study of Three-Dimensional Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P 676**; (D) **P 688-689**; (AC) **P 689**

Lamarre, G. Mechanical Reliability Confidence Limits (77-WA/DE-12) **MD 607**; (D) (AC) **MD 613**

Lamba, H. S. Cyclic Plasticity for Nonproportional Paths: Part 1—Cyclic Hardening, Erasure of Memory, and Subsequent Strain Hardening Experiments (77-WA/Mat-12) **MT 96**; Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) **MT 104**

Lambda Matrices

Roots of Lambda Matrices (78-WA/APM-4) **AM 859**

Laminar Boundary Layer

Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) **F 265**; (D) **F 274**; (AC) **F 275**

Heat Transfer During Piston Compression **HT 527**

Laminar Boundary Layer Transfer

Laminar Boundary Layer Transfer Over Rotating Bodies in Forced Flow **HT 496**

Laminar Combined Convection

Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**; (Er) **HT 367**

Laminar Film Condensation

Linearized Stability Analysis of Film Condensation **HT 629**

Laminar Free Convection

Laminar Free Convection Heat Transfer Through Horizontal Duct Connecting Two Fluid Reservoirs at Different Temperatures (TN) **HT 725**

Laminar Free Convection Boundary Layer

Predictive Capabilities of Series Solutions for Laminar Free Convection Boundary Layer Heat Transfer (TN) **HT 160**

Laminar Free Convection Flow

Nonsimilar Laminar Free Convection Flow Along a Non-isothermal Vertical Plate (TN) **HT 163**

Laminar Flow

Approximate Solution for Pulsatile Laminar Flow in a Circular Rigid Tube (TB) **F 131**

The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow **F 210**

Flow in Finite-Width, Thrust Bearings Including Inertial Effects I—Laminar Flow **L 330**

Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow With Uniform Wall Temperature (TN) **HT 539**

Thermohydrodynamic Analysis for Laminar Flow Journal Bearing (TB) **L 510**

Laminar Flow Pattern

Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) **L 167**; (D) (AC) **L 174**

Laminar Forced Convection

An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition From Laminar Forced Convection to Turbulent Free Convection Over a Horizontal Isothermally Heated Plate **HT 429**

Laminar Heat Transfer

Forced Convection Heat Transfer From a Shrouded Fin Array With and Without Tip Clearance **HT 572**

Laminar Heating

Variable Physical Properties in Laminar Heating of Pseudoplastic Fluids With Constant Wall Heat Flux **HT 220**

Laminar Hydrodynamic Entry Length

A Correlation for Laminar Hydrodynamic Entry Length Solutions for Circular and Noncircular Ducts **F 177**

Laminar Jet Flow

Solutions of Laminar Jet Flow Problems for Non-Newtonian Power-Law Fluids **F 363**; (D) (AC) **F 500**

Laminar Jets

Developing Region of Laminar Jets With Uniform Exit Velocity Profiles **F 55**; (D) **F 374**; (AC) **F 375**

Laminar Liquid Films

Dynamics of Developing Laminar Non-Newtonian Falling Liquid Films With Free Surface **AM 19**

Wave Effects on the Transport to Falling Laminar Liquid Films **HT 143**

Laminar Natural Convection

Laminar Natural Convection Heat Transfer in a Horizontal Cavity With Different End Temperatures **HT 641**

Laminar Overfire Region

An Investigation of the Laminar Overfire Region Along Upright Surfaces (77-HT-68) **HT 112**

Laminar Results
Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**
Laminar Shear Layer
Laminar Shear Layer Due to a Thin Flat Plate Oscillating With Zero Mean Velocity (78-WA/FE-16) **F 367**
Laminar Throughflow
Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**
Laminar-Turbulent Flow
Laminar-Turbulent Flow in a Spherical Annulus **F 281**
Laminar Viscous Incompressible Flow
A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**
Laminar Vortex
On Vortex Wind Power (77-WA/FE-20) **F 79**
Laminar Water Boundary Layer
Variable Viscosity Effect on the Laminar Water Boundary Layer on Heated Cones **AM 481**
Laminated Composites
Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) **HT 281**
Simulation of the Influence of Bonding Materials on the Dynamic Behavior of Laminated Composites (78-WA/APM-15) **AM 822**
Laminated Rectangular Plates
A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**
Laminated Structures
The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) **MT 2**
Laminates
Fatigue Crack Propagation in 8- and 22- Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) **MT 32**
Land Transportation
Energy Requirements of the Rail Mode (78-RT-1) **I 475**
Landes, J. D. Elastic-Plastic R-Curves (78-Mat-12) **MT 258**
Landgrebe, A. J. An Experimental Study of Three-Dimensional Characteristics of Propeller Wakes Under Stalling Conditions (D) **F 141**; (AC) **F 142**
Landweber, L. *(reviewer)* Marine Hydrodynamics (BR) **AM 457**
Lang, K.-W. Harmonic Waves in Layered Composites: New Bounds on Eigenfrequencies (78-WA/APM-23) **AM 829**
Lang, R. P. The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) **P 452**
Lange, F. F. Progress on Ceramic Rotor Blade Development for Industrial Gas Turbines (77-GT-42) **P 58**
Langholz, G. Carathéodory Controllability Criterion for Nonlinear Dynamical Systems **DS 209**
Lanning, J. G. Aluminous Kealite—An Improved Rotary Ceramic Regenerator Core Material (77-GT-60) **P 36**
Laplace-Poisson Equation
Exact and Approximate Equations for Real-Fluid Isentropic Flow **F 413**
Lardner, T. J. On the Contact Problem of a Highly Inflated Spherical Nonlinear Membrane (BN) **AM 202**
Large Leak Test Rig (LLTR)
Operating Experience and Sodium—Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) **P 347**
Large-Scale Cooling Systems
Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) **F 65**
Larsen, P. C. Interferometric Deformation Measurement of Elastohydrodynamically Loaded Surfaces (TB) **L 508**
Larsen-Basse, J. Strain Rate Effects in Low Speed Two-Body Abrasion **L 181**
Larsson, B. A State Variable Interpretation of Some Rate-Dependent Inelastic Properties of Steel **MT 395**
Laser Anemometer
Measurement of Roller Speed in a Cylindrical Roller Bearing Using a Laser Anemometer **L 488**
Laser Beams
Assessment of Surface-Heating Problems in Laser-Fusion Reactors **HT 311**
Two-Dimensional Multiple Scattering Comparison of Theory With Experiment (77-HT-48) **HT 480**
Laser-Doppler Anemometry
Turbulence Characteristics of the Flow Downstream of a Symmetric, Plane Sudden Expansion **F 309**
The Velocity Characteristics of Ventilated Rooms **F 291**
Laser-Fusion Reactors
Assessment of Surface-Heating Problems in Laser-Fusion Reactors **HT 311**
Laser Interferometry Measurements
Initial Response of a Rock Penetrator **AM 559**
Laser Irradiation
Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation **BE 49**
Laser Light Scattering Probe
Moisture Measurements in a Low Pressure Steam Turbine Using a Laser Light Scattering Probe **P 544**
Laser Velocimetry
Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**
Lasers
On the Growth of Steam Droplets Formed in a Laval Nozzle Using Both Static Pressure and Light Scattering Measurements **F 311**
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) **P 655**
Laskaris, T. E. Transient Thermal Analysis of Epoxy-Impregnated Superconducting Windings in Linearly Ramped Fields (77-HT-77) **HT 702**
Latent Hardening
Further Investigation of a New Hardening Law in Crystal Plasticity **AM 500**
Lateral Creepages
Nonlinear Kinematics of Wheel-Rail Contact **AM 664**
Lateral Dynamic Performance Improvement
Rail Passenger Vehicle Lateral Dynamic Performance Improvement Through Active Control **DS 270**
Lateral Response
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**
Lateral Stability
High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) **I 49**
Lateral Walls
A Method for Testing Cascades With Converging Sidewalls **P 457**
Lattice Contact
Lattice Contact In Generated Spiral Bevel Gears (77-DET-63) **MD 42**
Lau, W. On a New Model of Oblique Cutting (77-WA/PROD-6) **I 287**
Lauer, J. Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow (D) (AC) **F 377**
Launder, B. E. Flow in Finite-Width, Thrust Bearings Including Inertial Effects: Part I—Laminar Flow **L 330**; Part II—Turbulent Flow **L 339**; The Numerical Prediction of Viscous Flow and Heat Transfer in Tube Banks **HT 565**
Laura, P. A. A. On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) **MD 703**
Laval Nozzle
On the Growth of Steam Droplets Formed in a Laval Nozzle Using Both Static Pressure and Light Scattering Measurements **F 311**; (Er) **F 499**
Lavan, Z. Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**
Law, E. H. A Survey of Rail Vehicle Testing for Validation of Theoretical Dynamic Analyses **DS 238**
Lawn, C. J. Derivation of Turbulent Transport Parameters in Isotropic Turbulence (D) **F 139**; (AC) **F 140**
Lawrence, R. J. The Effect of Material Constitutive Models on Stress Wave Propagation Calculations (77-WA/Mat-8) **MT 84**
Layered Composites
Harmonic Waves in Layered Composites: New Bounds on Eigenfrequencies (78-WA/APM-23) **AM 829**
Lazalier, G. R. A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) **P 691**; (D) (AC) **P 697**
Layered Composites
Simulation of the Influence of Bonding Materials on the Dynamic Behavior of Laminated Composites (78-WA/APM-15) **AM 822**
Leading-Edge Correction
Leading-Edge Correction for the Supercavitating Flat-Plate Hydrofoil (77-FE-21) **F 276**; (D) (AC) **F 280**
Leakage Detector
Gas Flow Through Cracks **F 453**
Leakage Tissue
Measurement of Burn-Induced Leakage of Macromolecules in Living Tissue **BE 153**
Leal, L. G. An Evaluation of Mean Reynolds Stress Turbulence Models: The Triple Velocity Correlation **F 47**
Leaves
A Theoretical Analysis of CO_2 Absorption in Sun Versus Shade Leaves **BE 20**
Lebeck, A. O. Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) **L 81**; (D) (AC) **L 90**
L'Ecuyer, J. Helium Blistering in Metals (78-Mat-5) **MT 411**
Lee, D. Further Developments in Anisotropic Plasticity **MT 294**
Lee, D. E. Special Engineering Problems of TFTR (77-WA/NE-4) **P 417**
Lee, D. S. On the Thermal Effects in a Warp Beam (A Wound-Yarn-Package) (77-TEX-3) **I 8**
Lee, E. H. Concerning Analysis of Central Burst in Metal Forming (TB) **I 386**
Lee, F. F. M. Review of Wear Problems in the Computer Industry (77-Lub-4) **L 189**; (D) **L 195-197**; (AC) **L 198**
Lee, J. S. Particle Deposition in a Charged Aerosol Flowing Through a Conducting Tube **F 449**
Lee, L. H. N. Quasi-Bifurcation of Rods Within an Axial Plastic Compressive Wave **AM 100**
Lee, M.-H. Laminar Boundary Layer Transfer Over Rotating Bodies in Forced Flow **HT 496**
Lee, T. Y. R. Thermal Diffusivity of Dispersed Materials **HT 720**
Leech, C. Propagation Fronts Arising From the Impulsive Excitation of Orthogonaily Woven Cloth and Nets (BN) **AM 957**
Lees, A. W. Torsional Vibrations of a Boiler Feed Pump (77-DET-28) **MD 637**
Le Grivès, E. Mixing Process Induced by the Vorticity Associated With the Penetration of a Jet into a Cross Flow **P 485**
Leg Muscle Forces
Determining Muscle Forces in the Leg During Normal Human Walking—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) **BE 72**
Leibnitz's Rule
Leibnitz's Rule and the J-Integrals (BN) **AM 425**
Leibovich, S. *(reviewer)* MHD Flows and Turbulence (BR) **AM 232**
Leidenfrost Temperature
On the Thermodynamic Superheat Limit for Liquid Metals and Its Relation to the Leidenfrost Temperature (TN) **HT 734**
Leipholz, H. H. E. Stability of a Rectangular Simply Supported Plate Subjected to Nonincreasing Tangential Follower Forces (BN) **AM 223**
Leis, B. N. Fatigue Life Prediction of Complex Structure (77-DE-46) **MD 2**
Leko, T. Saint-Venant's Principle and End Effects in Anisotropic Elasticity (D) **AM 455**; Stability of a Cluster of Flexible Cylinders in Bounded Axial Flow (D) **AM 455**; Vibration of a Group of Circular Cylinders in a Confined Fluid (D) (AC) **AM 455**
Le May, I. On the Minimum-Commitment Method for Correlation of Creep-Rupture Data (TB) (78-Mat-18) **MT 333**; On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) **MT 319**
Lenard, J. G. A Comparative Study of Various Empirical Relations Applicable in Hot Strip Rolling (TB) **MT 430**; On the Eversion of a Superplastic, Thin Walled Tube (TB) **MT 428**
Length and Strength Measurement
A New Hooked Needle Device for Forming Fiber Beards for Length and Strength Measurement (77-Tex-2) **I 5**
Lentz, J. S. Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) **PVT 77**
Leon, G. F. Report of Gasket Factor Tests **PVT 131**
Leschziner, M. Flow in Finite-Width, Thrust Bearings Including Inertial Effects: Part I—Laminar Flow **L 330**; Part II—Turbulent Flow **L 339**
Lester, T. W. Hydrodynamic Stability in Horizontal Fluid Layers With Uniform Volumetric Energy Sources (TN) **HT 729**
Leung, P. Power System Economics: On Selection of Engineering Alternatives (77-JPGC-Pwr-7) **P 333**; (D) **P 343**; (AC) **P 346**
Levi, R. Machining Economics and Tool Life

Variation—Part 1: Basic Considerations and Their Practical Implications (77-WA/PROD-12) **I 393**; Part 2: Application to Models for Machining Processes (77-WA/PROD-13) **I 397**; (D) **I 401**; (AC) **I 402**

Levine, H. *(author)* Unidirectional Wave Motions (BR) **AM 969**

Levine, H. S. Three-Dimensional Elasticity Solution and Edge Effects in a Spherical Dome (D) **AM 700**; (AC) **AM 701**

Levinson, D. A. A Realistic Solution of the Symmetric Top Problem (78-WA/APM-20) **AM 963**; Successive Finite Rotations (BN) **AM 945**

Levy, S. *(author)* The Component Element Method in Dynamics (BR) **AM 235**

Lew, W. D. A Method for Locating an Optimal "Fixed" Axis of Rotation for the Human Knee Joint **BE 187**

Lewis, J. L. In-Vivo Mechanical Properties of Soft Tissue Covering Bony Prominences **BE 194**; A Method for Locating an Optimal "Fixed" Axis of Rotation for the Human Knee Joint **BE 187**

Lewis, R. W. *(translator)* Applications of the Theory of Plasticity in Soil Mechanics (BR) **AM 705**

Li, C.-H. The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) **L 261**; (D) **L 269**; (AC) **L 270**

Li, K. W. A Parametric Study of Hot Water Storage for Peak Power Generation **P 229**

Li, T. Y. Fluid Dynamics of the Elliptic Porous Slider (BN) **AM 435**

Libby, P. A. *(reviewer)* Turbulence in Liquids (BR) **AM 232**

Libove, C. Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**

Liburdy, J. A. Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along a Vertical Isothermal Wall **HT 177**

Lienhard, J. H. Corresponding States Correlations of the Extreme Subcooling (77-HT-20) **HT 492**; Early Response of Hot Water to Sudden Release From High Pressure **HT 473**; The Temperature Dependence of Surface Tension of Pure Fluids **HT 324**

Life Support Systems

Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAS-54) **I 383**

Lift

Lift on a Rotating Porous Cylinder (D) **F 136**; (AC) **F 137**

The Acceleration of Thin Cylindrical Bodies in a Viscous Fluid **AM 1**

Lift Mechanism Design

A Rapid Approximate Solution to Davydenko's Lift Mechanism Design Problem (TB) **I 110**

Light Beams

The End-Values of Distributed Loads in Half Planes by Caustics **AM 313**

Light Damping Hypothesis

Wide-Band Random Vibration of Circular Plates (77-DET-97) **MD 690**

Light Scattering Measurements

On the Growth of Steam Droplets Formed in a Laval Nozzle Using Both Static Presssure and Light Scattering Measurements **F 311**; (Er) **F 499**

Lignite

An Assessment of Overburner Stability in the In-Situ Gasification of Texas Lignite **PVT 285**

Likins, P. *(reviewer)* Dynamics of Systems of Rigid Bodies (BR) **AM 458**

Lilleleht, L. U. Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) **P 497**

Limit Analysis

Limit Analysis of Hollow Disk Forging: Part 1: Upper Bound (77-WA/PROD-2) **I 340**; (D) (AC) **I 345**; Part 2: Lower Bound (77-WA/PROD-3) **I 347**; (D) (AC) **I 345**

Limit Pressures

Lower-Bound Limit Pressures for the Cylinder-Cylinder Intersection: A Parametric Survey **PVT 65**

Limit Strains

On the Theories of Sheet Metal Necking and Forming Limits **MT 303**

Lin, F. N. Predictive Capabilities of Series Solutions for Laminar Free Convection Boundary Layer Heat Transfer (TN) **HT 160**

Lin, S. P. Wave Motion in Multilayered Liquid Films **AM 25**

Lin, Y. J. Dynamic Response of Circular Plates Resting on Viscoelastic Half Space **AM 379**

Lin, Y. K. Deterministic Stability Analysis of a Wind Loaded Structure **AM 165**

Line Contact

The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact Part I: Fully Flooded Conditions **L 346**; Part II: Starved Conditions **L 353**

Thermoelastic Effects in Frictionally Heated Line Contact of Slablike Bodies (77-Lub-21) **L 136**

Line Contacts

An Approximate Equation for Predicting the Isothermal and Nonisothermal Starved Rolling Traction in an E.H.L. Line Contact **L 472**

Line Pipe

On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) **PVT 13**

Linear Behavior

Construction of Nonlinear Monotonic Functions With Selectable Intervals of Almost Constant or Linear Behavior (78-WA/APM-22) **AM 780**

Linear Block Transformation

Some Sufficient and Some Necessary Conditions for the Stability of Multivariable Systems **DS 214**

Linear Constraints

A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) **MD 292**

Linear Continuous Extrusion Theory

Theory of Linear Continuous Extrusion—Linex (77-WA/PROD-17) **I 37**

Linear Dynamic Electromechanical Responses

One Dimensional, Linear Dynamic Electromechanical Responses of Ferroelectric Ceramics **AM 749**

Linear Elastic Behavior

Design of U-Shaped Bellows Considering Low-Cycle Fatigue **PVT 382**

Linear Elastic Fracture Mechanics

Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) **MT 381**

Fracture Mechanics of Composite Materials **MT 233**

Linear Elastic Helical Spring

Saint-Venant's Principle for a Helical Spring **AM 297**

Linear Elastic Materials

Plane Progressive Waves in a Binary Mixture of Linear Elastic Materials **AM 493**

Linear Elements

The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transients **HT 120**

Linear Goal Programming

Application of Goal Programming to Machinability Data Optimization (77-DET-19) **MD 286**

Linear Homogeneous Dispersive Media

Elastic Dispersion, Homogeneous Dispersive Media and an Application to Periodic Elastic Media **AM 337**

Linear Initial Stress

Application of Stress Functions to Initial Stress Problems **AM 350**

Linear Perturbation Analysis

Surface Ribbing of a Thin Viscous Fluid Film Emerging From a Spreader or Roller **L 462**

Linear Programming Model

A Generalized Decomposition Procedure and Its Application to Engineering Design (77-DET-62) **MD 739**

Linear Proportional Weirs

Datum Line Fixation for Linear Proportional Weirs (BN) **AM 441**

Linear Ramping

Transient Thermal Analysis of Epoxy-Impregnated Superconducting Windings in Linearly Ramped Fields (77-HT-77) **HT 702**

Linear Stability

Wave Motion in Multilayered Liquid Films **AM 25**

Linear Stiffness

First-Passage Time for Oscillators With Nonlinear Damping **AM 175**

Linear Structural Dynamics

Implicit-Explicit Finite Elements in Transient Analysis: Implementation and Numerical Examples **AM 375**

Implicit-Explicit Finite Elements in Transient Analysis: Stability Theory **AM 371**

Linear Systems

An Introduction to the Theory of Linear Systems (BR) **DS 182**

Response of a Multidegree-of-Freedom System to Nonstationary Random Excitation **AM 649**

Stability Tests for One, Two, and Multidimensional Linear Systems **DS 105**

Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique **AM 393**

Linear Theory

Consolidation in Compressible Mixtures **AM 727**

Elastodynamics, Vol. II, Linear Theory (BR) **AM 229**

Leading-Edge Correction for the Supercavitating Flat-Plate Hydrofoil (77-FE-21) **F 276**; (D) (AC) **F 280**

On the Symmetry and Stability of Thermoelastic Solids **AM 746**

Linear Vibration

Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) **I 311**; (D) **I 316**; (AC) **I 317**

Linear Viscoelasticity

Mechanik der Polymer Werkstoffe (BR) **AM 456**

Linear Wave Theory

Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) **MD 100**

Linearization

An Analysis of the Three-Way Underlapped Hydraulic Spool Servovalve **DS 117**

Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) **MD 242**

Linearized Stability

Linearized Stability Analysis of Film Condensation **HT 629**

Linear Stability

Structural and Cooling Aspects of the Aden Nonaxisymmetric Exhaust Nozzle (77-GT-110) **P 308**

LINEX

Theory of Linear Continuous Extrusion—Linex (77-WA/PROD-17) **I 37**

Ling, F. F. *(reviewer)* Impact Wear of Materials (BR) **AM 458**; Two Temperature Gradients Model for Friction Failure (D) **L 484**; (AC) **L 485**

Link System

The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) **MD 762**

Link Tolerance

Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) **MD 732**

Linkage Manipulator

Curve Linkage Manipulator (GR) **MD 205**

Linkages

Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) **MD 732**

Linked Rigid Bodies

Dynamics of Multirigid-Body Systems (78-WA/APM-10) **AM 889**

Lionberger, S. R. Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) **MD 520**

Liquid Droplet

Transient Temperature Profile of a Hot Wall Due to an Impinging Liquid Droplet (TN) **HT 167**

Liquid Face Seals

Phase Change in Liquid Face Seals (77-Lub-12) **L 74**; (D) (AC) **L 79**

Liquid-Filled Multiple Concentric Cylinders

Stress-Induced Radial Pressure Gradients in Liquid-Filled Multiple Concentric Cylinders (D) **AM 228**

Liquid Films

Dynamics of Developing Laminar Non-Newtonian Falling Liquid Films With Free Surface **AM 19**

The Dynamics of Thin Liquid Films in Rotating Tubes: Approximate Analysis **F 187**

Wave Effects on the Transport to Falling Laminar Liquid Films **HT 143**

Wave Motion in Multilayered Liquid Films **AM 25**

Liquid Fuel Flames

Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) **I 210**

Liquid Flow

Choked Expansion of Subcooled Water and the I.H.E. Flow Model **HT 275**

Liquid Jet

Wave Propagation and Instability in a Circular Semi-Infinite Liquid Jet Harmonically Forced at the Nozzle **AM 469**

Liquid Jets

Liquid Jet Impingement Normal to a Disk in Zero Gravity (78-WA/FE-1) **F 204**

Liquid Layers

Heat Transfer Phenomenology of a Hydrodynamically Unstable Melting System **HT 305**

Liquid-Lubricated Thrust Bearing

Design Charts for Arbitrarily Pivoted, Liquid-Lubricated,

Flat-Sector-Pad Thrust Bearing (77-Lub-24) **L 279**; (D) **L 285**; (AC) **L 286**

Liquid Metals
Magnetic Field Effects on Bubble Growth in Boiling Liquid Metals **HT 466**
Shape of Two-Dimensional Solidification Interface During Directional Solidification by Continuous Casting **HT 3**
On the Thermodynamic Superheat Limit for Liquid Metals and its Relation to the Leidenfrost Temperature (TN) **HT 734**

Liquid Natural Gas
The Use of Liquid Natural Gas as Heat Sink for Power Cycles (77-GT-19) **P 189**

Liquid-Solid Impact
Liquid-Solid Impact Calculations With Triangular Elements (D) **F 255**; (AC) **F 256**

Liquid Superheat
Corresponding States Correlations of the Extreme Liquid Superheat and Vapor Subcooling (77-HT-20) **HT 492**

Liquids
Heat Transfer in Turbulent Pipe Flow for Liquids Having a Temperature-Dependent Viscosity **HT 224**
The Temperature Dependence of Surface Tension of Pure Fluids **HT 324**
Turbulence in Liquids (BR) **AM 232**

Lithium Aluminum Silicate
Aluminous Keatite—An Improved Rotary Ceramic Regenerator Core Material (77-GT-60) **P 36**

Litvin, F. L. An Analysis of Undercut Conditions and of Appearance of Contact Lines Envelope Conditions of Gears (77-DET-2) **MD 423**

Liu, H. *(editor)* Strength and Structure of Solid Materials (BR) **AM 231**

Liu, W. K. Finite-Element Methods for Nonlinear Elastodynamics Which Conserve Energy **AM 366**; Implicit-Explicit Finite Elements in Transient Analysis: Implementation and Numerical Examples **AM 375**; Implicit-Explicit Finite Elements in Transient Analysis: Stability Theory **AM 371**

Living Tissue
Analytical Solutions to the Problem of Transient Heat Transfer in Living Tissue **BE 202**
Measurement of Burn-Induced Leakage of Macromolecules in Living Tissue **BE 153**

Lloyd, J. R. Experimental Observations on the Thermal Fragility of Erythrocytes Including the Effects of Storage and Anticoagulant **BE 223**

Lo, C. C. Bending of a Nonlinear Rectangular Beam in Large Deflection (BN) **AM 213**

Lo, K. K. Analysis of Branched Cracks **AM 797**

Load Capacity
On the Analytical Solution of Externally Pressurized Porous Gas Journal Bearings (TB) **L 442**
On the Roughness Effect in Hydrodynamic Lubrication **L 176**; (D) (AC) **L 180**

Load Carrying Capacity
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) **L 167**; (D) (AC) **L 174**

Load Conditions
Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) **I 311**; (D) **I 316**; (AC) **I 317**
Optimum Design of Bridge Girders for Electric Overhead Traveling Cranes (76-WA/DE-28) **I 375**

Load Curves
A Study of Wall Ironing by the Finite Element Technique (77-WA/PROD-8) **I 31**

Load Cycling
A Control Algorithm for Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**

Load Data
Summarization and Comparison of Freight Car Truck Load Data (77-WA/RT-3) **I 60**

Load-Deformation Behavior
Load-Deformation Behavior of Elastic Beam-Columns of Yielding Foundations **P 182**

Load Distribution
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) **MD 374**
Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) **MD 433**
Load Distribution in Timing Belts (77-DET-100) **MD 208**

Load Disturbances
Optimum Design of Control System Compensators **DS 140**

Load-Life Relations
Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) **MD 54**

Load Stresses
Thermal Damage and Rail Load Stresses in a 33-Inch Railroad Car Wheel (77-WA/RT-2) **I 363**

Load Torque
Torquewhirl—A Theory to Explain Nonsynchronous Whirling Failures of Rotors With High-Load Torque **P 235**

Load Variation
An Experimental Study of Progressive Strain Growth Due to Thermal-Stress Ratcheting **MT 150**

Loaded Plates
Eigenfunction Solutions for the Flexure of Clamped Rectangular Plates Lying on an Elastic Foundation (BN) **AM 211**

Loaded Structure
Deterministic Stability Analysis of a Wind Loaded Structure **AM 165**

Loaded Surfaces
Interferometric Deformation Measurement of Elastohydrodynamically Loaded Surfaces (TB) **L 508**

Loading
Analysis of Closure in Fatigue Crack Growth **AM 267**
Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) **PVT 344**
An Analysis of High Temperature Metal Creep Part I: Experimental Definition of an Alloy **MT 363**
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) **L 287**; (D) **L 294**; (AC) **L 295**
Application of the R-Curve Concept to Fatigue Crack Growth **MT 416**
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 2: Experimental Investigation (77-DET-53) **MD 395**; (D) (AC) **MD 404**
Buckling of Short Cylinders Under Combined Loading **AM 574**
Construction of Nonlinear Monotonic Functions With Selectable Intervals of Almost Constant or Linear Behavior (78-WA/APM-22) **AM 780**
Contrasting Fracture Models For Granite Under Dynamic Loading **MT 287**
Control of Clearance Effects in Mechanisms (77-WA/DE-2) **MD 728**
Crack Growth Resistance at Low Stress Intensities **MT 134**
Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/PROD-28) **I 147**
Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) **MT 25**
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) **P 592**; (D) **P 601-602**; (AC) **P 602**
Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**
Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 650**
Extremes of Monson-Type Wave Loading on a Single Pile (77-DET-82) **MD 100**
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) **I 249**
General Yielding of Charpy V-Notch and Precracked Charpy Specimens **MT 183**
On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**
Machine Loading and Product-Mix Analysis for Group Technology (77-WA/PROD-21) **I 370**
Mechanical Behavior of Nonlinear Visco-Elastic Celluloid Under Superimposed Hydrostatic Pressure **PVT 271**
Nonaxisymmetric Flow through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**
A Novel Physico-Computational Model for Quasi One-Dimensional Gas-Particle Flows (76-WA/FE-36) **F 343**
Pile Foundations in Frozen Soils (77-Pet-79) **PVT 302**
Postbuckling Ring Analysis (BN) **AM 208**
Rotational Vibration With Backlash: Part 1 (77-DET-105) **MD 363**
Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) **MD 492**; (D) (AC) **MD 498**
Stress-Strain Analysis of Cyclic Plastic Bending and Torsion **MT 157**
Stresses in Ruptured Floating Roofs **PVT 291**
Stress Singularity at the Corner of a Wedge-Shaped Crack or Inclusion (78-WA/APM-6) **AM 791**
Thermographic Determination of Fatigue Damage **MT 200**
Tool Life Distributions Part 3: Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) **I 193**
Transient Response of a Rotor in Damped Bearings (77-DET-21) **MD 257**
On the Uniqueness and Stability of Endochronic Theories of Material Behavior **AM 263**

Loading Buckling
Optimal Shape of Shallow Circular Arches Against Snap-Buckling **AM 591**

Loading Conditions
Analysis of Leg Loading in Snow Skiing **DS 177**
Application of The Parameter Plane Method to The Analysis of Directional Stability of Tractor-Semitrailers **DS 9**
A Comparison of Deformation and Flow Theories Under Dynamic Loading Conditions (BN) **AM 431**
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) **P 356**
Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**
Stress Analysis of Pipe Bends by Ring Elements **PVT 112**
Vortex Sheet Analysis of the Giromill **F 340**

Loading Mechanisms
Loading Mechanisms in Thawed Permafrost Around Arctic Wells (D) **PVT 320**

Loads
An Analysis of the Three-Way Underlapped Hydraulic Spool Servovalve **DS 117**
Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) **P 380**; (D) (AC) **P 389**
Angled Elliptic Notch Problem in Compression and Tension **AM 258**
Annular Dome Subjected to Uniform Load Over an Eccentric Circular Area **AM 845**
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) **MD 440**
Asymptotic Methods for a General Finite Width Gas Slider Bearing **L 254**
Axial Impact Buckling of a Column With Random Initial Imperfections **AM 361**
The Coupled Response of a Dynamic Element Riding on a Continuously Supported Beam **AM 864**
Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) **MT 381**
Creep Relaxation of a Beam of General Cross Section Subjected to Mechanical and Thermal Loads (TB) **MD 626**
Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**
Dynamics of Viscoelastic Plate With Curved Boundaries of Arbitrary Shape **AM 629**
The Effect of Spatial Distribution on Dynamic Snap-Through **AM 612**
Elastic-Plastic Response of 304 Stainless Steel Beams to Impulse Loads (BN) **AM 685**
Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) **L 236**; (D) (AC) **L 245**
The End-Values of Distributed Loads in Half Planes by Caustics **AM 313**
Fracture Mechanics Approach to Fatigue Analysis in Design **MT 113**
Fracture Under Combined Loads by Maximum-Energy-Release-Rate Criterion **AM 553**
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) **MD 715**
Geometry of Scalloped Closures for Cylindrical Vessels (TB) **PVT 310**
Indentation of a Membrane on an Elastic Half Space **AM 328**
Model Formulation of Complex Mechanisms With Multiple Inputs: Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) (AC) **MD 761**
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**
Simulation of Continuous Systems by Periodic Structures **AM 385**
Squeeze Film Flow in Arbitrarily Shaped Journal Bearings

Subject to Oscillations **L 323**
Squeeze Film Flow Between Arbitrary Two-Dimensional Surfaces Subject to Normal Oscillations **L 316**
Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) **MD 507**
Stiffness Coefficients and Allowable Loads for Nozzles in Flat-Bottom Storage Tanks (77-PVP-19) **PVT 389**
Three-Dimensional Wave Propagation in a Cracked Elastic Solid **AM 807**
Variables Influencing Degradation of SiC Abrasive Papers **L 501**
Vibrations and Dynamic Response of Membranes With Arbitrary Shape **AM 153**
Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) **MD 514**
Lobitz, D. W. Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (D) (AC) **MD 659**
Local Necking
Void Growth and Local Necking in Biaxially Stretched Sheets **MT 164**
Locomotion
A Thermodynamic Model of Biological Body: Muscle Mechanics **BE 14**
Locomotive Trucks
Hunting Stability of the Three Axle Locomotive Truck (78-RT-6) **I 483**
London-Van Der Waals Dispersion Force
The Effects of the London-Van Der Waals Dispersion Force on Interline Heat Transfer **HT 155**
Long, L. S., III A Note on the Stability of a Gyrostat With a Fixed Point (BN) **AM 676**
Long, S. S. High Temperature Properties and Constitutive Equations for 1 Cr-½ Mo Steel (77-PVP-50) **PVT 246**
Long-Wavelength Scattering
On the Estimation of a Crack Fracture Parameter by Long-Wavelength Scattering (BN) **AM 453**
Long Wavelength Values
Power Spectral Density for Constrained Long Wavelength Guideway Irregularities (77-WA/Aut-13) **DS 18**
Longcope, D. B. Initial Response of a Rock Penetrator **AM 559**
Longitudinal Control
Longitudinal Control of Automated Guideway Transit Vehicles Within Platoons **DS 302**
Longitudinal Dynamic Response
Effects of Jerk Limiting on the Stability of Automated Transit Vehicles **DS 298**
Longitudinal Heat Conduction
The Effect of Longitudinal Heat Conduction on Crossflow Heat Exchanger **HT 346**
Longitudinal Heat Propagation
Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) **HT 281**
Longitudinal Vortices
Experiments on the Onset of Longitudinal Vortices in Horizontal Blasius Flow Heated from Below **HT 71**
Look, D. C. Two-Dimensional Multiple Scattering Comparison of Theory with Experiment (77-HT-48) **HT 480**
Lord, P. R. The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-TEX-4) **I 13**
Lose-of-Coolant Accident
On the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 601**
Loss Factor
Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) **MD 667**
Loss Characteristics
Loss Characteristics of Orifices and Nozzles **F 299**
Louis, J. F. On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D) (AC) **P 591**
Love, W. J. Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**; Embedded Elliptical Crack at a Corner (78-PVP-5) **PVT 28**
Low-Alloy Steels
Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) **MT 338**
Low-Carbon Steel
Influence of Selenium and Tellurium on the Fatigue of Low-Carbon Steel (TB) **MT 216**
Low-Cycle Fatigue
Design of U-Shaped Bellows Considering Low-Cycle Fatigue **PVT 382**
Low Elastic Modulus
Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) **L 236**; (D) (AC) **L 245**
Low Frequency Bloch Waves
Low Frequency Bloch Waves for Wave Equations Whose Speed Is a Deterministic, or Randomlike, Periodic Function **AM 331**
Low Speed Flow
A Note on the Low Speed Flow Up a Step (TB) **F 127**
Low-Speed Two-Body Abrasion
Strain Rate Effects in Low Speed Two-Body Abrasion **L 181**
Low-Speed Vehicles
Magnetic Suspension for Low-Speed Vehicles **DS 333**
Low Sulfur Steels
MPC-6 "Effects of Melting and Processing Variables on Mechanical Properties of Steel" Properties of Extra Low Sulfur Engineering and Die Steel (D) (AC) **MT 223**
Lower Bound Solution
Limit Analysis of Hollow Disk Forging: Part 2: Lower Bound (77-WA/PROD-3) **I 347**; (D) (AC) **I 345**
Lower Bounds
Harmonic Waves in Layered Composites: New Bounds on Eigenfrequencies (78-WA/APM-23) **AM 829**
Lower Bounds for Gravest Torsional Frequencies (BN) **AM 197**
Lua, A. C. Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **MT 421**
Lubricant-Breakdown Rate
Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) **L 386**; (D) **L 393**; (AC) **L 394**
Lubricant Films
Flow in Finite-Width Thrust Bearings Including Inertial Effects Ii—Turbulent Flow **L 339**
Lubricant Jet Flow
Study of Lubricant Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) **MD 61**; (D) **MD 68**; (AC) **MD 68**
Lubricant Pressure
Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) **MD 433**
The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact Part I: Fully Flooded Conditions **L 346**; Part II: Starved Conditions **L 353**
Lubricants
The Conflicting Roles of Carbontetrachloride as a Boundary Lubricant (77-WA/PROD-7) **I 244**
Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) **L 279**; (D) **L 285**; (AC) **L 286**
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) **L 167**; (D) (AC) **L 174**
Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) **L 404**; (D) **L 416**; (AC) **L 417**
An Investigation Into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) **L 56**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) **L 418**
Review of Wear Problems in the Computer Industry (77-Lub-4) **L 189**; (D) **L 195-197**; (AC) **L 198**
Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) **MD 139**
On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) **L 296**; (D) **L 302**; (AC) **L 303**
Lubricated Elastomers
The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) **L 219**; (D) **L 224**; (AC) **L 225**
Lubricated Journal Bearings
Wear In Lubricated Journal Bearings **L 104**
Lubricating Oil
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) **MD 440**
Lubrication
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) **L 287**; (D) **L 294**; (AC) **L 295**
An Approximate Equation for Predicting the Isothermal and Nonisothermal Starved Rolling Traction in an E.H.L. Line Contact **L 472**
An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) **L 12**
Effects of Surface Roughness in Lubrication -- A Review of the Fourth Leeds-Lyon Symposium (FR) **L 6**
Elasto-Hydrodynamic Lubrication (BR) **L 447**
Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) **L 236**; (D) (AC) **L 245**
Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) **L 47**
Flow in Finite-Width, Thrust Bearings Including Inertial Effects I—Laminar Flow **L 330**
Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) **L 121**
Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) **L 81**; (D) (AC) **L 90**
On the Influence of Finite Wall Conductance and Inertia Effects of Hydrostatic Thrust Bearing **L 271**
Isothermal Elastohydrodynamic Lubrication of Point Contacts Part IV-Starvation Results (D) (AC) **L 142**
Lubrication of High-Speed, Large Bore Tapered-Roller Bearings (77-Lub-13) **L 31**
Measurement of Roller Speed in a Cylindrical Roller Bearing Using a Laser Anemometer **L 486**
Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear **L 492**; (D) (AC) **L 499**
A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) **L 110**
The Practical Significance of Designing to Gear Pitting Fatigue Life Criteria (77-DET-122) **MD 48**
On the Roughness Effect in Hydrodynamic Lubrication **L 176**; (D) (AC) **L 180**
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) **L 395**
Study of Lubricant Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) **MD 61**; (D) (AC) **MD 68**
Surface Ribbing of a Thin Viscous Fluid Film Emerging From a Spreader or Roller **L 462**
Techniques of Pilot-Scale Drilling Research (77-Pet-68) **PVT 188**
Traction Behavior in Sliding ehl Contacts (77-Lub-5) **L 115**
TRIBOLOGY: A System Approach to the Science and Technology of Friction, Lubrication and Wear (BR) **L 513**
Tribology, A Systems Approach to the Science and Technology of Friction, Lubrication and Wear (BR) **MT 336**
Lubrication Film
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) **L 261**; (D) **L 269**; (AC) **L 270**
Lubrication Theory
Squeeze Film Flow in Arbitrarily Shaped Journal Bearings Subject to Oscillations **L 323**
Squeeze Film Flow Between Arbitrary Two-Dimensional Surfaces Subject to Normal Oscillations **L 316**
Ludema, K. C. The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (D) **L 224**; (AC) **L 225**
Lugt, H. J. The Acceleration of Thin Cylindrical Bodies in a Viscous Fluid **AM 1**
Luisoni, L. E. On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) **MD 703**
Luke, R. R. Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) **PVT 200**
Luminous Flames
Infrared Mean Absorption Coefficients of Luminous Flames and Smoke **HT 235**
Lumley, J. L. A Theoretical Investigation on the Structure of Fan Wakes (76-WA/FE-22) **F 113**
Lumped Mass System
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) **MD 637**
Lumped Parameter Dynamic Systems
A Methodology for Optimal Sensor Locations for Identification of Dynamic Systems **AM 188**
Lumped-Parameter Model
First-Order Pump Surge Behavior (77-WA/FE-12) **F 459**
Lumped-Parameter Models
On Gyrobondgraphs and Their Uses **DS 76**
Lund, J. W. Critical Speeds, Stability and Response of a Geared Train of Rotors (77-DET-30) **MD 535**; (D) **MD 538**; (AC) **MD 539**; Some Experiments on Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) **MD 147**

Lung Reflection Data
Noninvasive Inference of Airway Network Geometry From Broadband Lung Reflection Data **BE 131**
Luttrell, N. W. Graphical Output-Oriented Computer Model of a Railroad Freight Car With Conventional Trucks (77-RT-11) **I 67**
Lyman, J. The Effect of Plastic Strain Followed by Aging on the Torsion Fatigue Resistance of Quenched and Tempered 4340 Steel (TB) **MT 219**
Lymwander, P. *(author)* Sprag Overriding Aircraft Clutch (GR) **MD 205**
Lyons, D. W. Calculation of Peak Yarn Tension During Ring-Spinning (77-Tex-6) **I 167**; A New Hooked Needle Device for Forming Fiber Beards for Length and Strength Measurement (76-Tex-2) **I 5**; An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) **I 1**

M

Macander, A. B. Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) **MT 64**
MacDonald, D. A. Steady Flow in Tubes of Slowly Varying Cross Section **AM 475**
Machinability
Tool Life Distributions Part 4: Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) **I 201**
Machinability Data Optimization
Application of Goal Programming to Machinability Data Optimization (77-DET-19) **MD 286**
Machine Automation
Machine Automation and Numerical Control (GR) **MD 203**
Machine Condition Monitoring Methods
Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) **MD 229**
Machine Element
An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) **MD 614**
Machine Loading
Machine Loading and Product-Mix Analysis for Group Technology (77-WA/PROD-21) **I 370**
Machine Structure
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/PROD-1) **I 113**
Machine Tool Chatter Control Systems
Analysis and Design of Machine Tool Chatter Control Systems Using the Regeneration Spectrum **DS 191**
Machine Tool Control Problem
The Optimal Machine Tool Control Problem **DS 170**
Machine Tool Gear Transmission
Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) **MD 303**
Machine Tool Structures
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/PROD-15) **I 137**
Machinery
Determination of Dynamic Characteristics of an Impact Forming Machine Structure (77-WA/Prod-5) **I 434**
Machinery Reliability
Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) **MD 619**
Machining
Orthogonal Machining of Bone **BE 122**
Machining Conditions
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/PROD-4) **I 356**
Machining Economics
Machining Economics and Tool Life Variation—Part 1: Basic Considerations and their Practical Implications (77-WA/PROD-12) **I 393**
Machining Economics and Tool Life Variation—Part 2: Application to Models for Machining Processes (77-WA/PROD-13) **I 397**, (D) **I 481**, (AC) **I 482**
Machining Operations
Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/PROD-41) **I 323**
Machining Process
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/PROD-19) **I 303**; (D) **I 309**; (AC) **I 310**
Machining System Dynamics
Identification of Machining System Dynamics by Equation Error Minimization (77-WA/PROD-44) **I 332**; (D) (AC) **I 339**
Mack, W. M., Jr. Performance Ranking of Plate-Fin Heat Exchanger Surfaces (76-WA/HT-31) **HT 514**
MacPherson, A. K. *(reviewer)* Numerical Methods in Fluid Dynamics (BR) **DS 161**
MacPherson, P. B. The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) **MD 696**
Macroeconomic Systems
On Gyrobondgraphs and Their Uses **DS 76**
Macroscopic Optical Properties
The Effect of the London-Van Der Waals Dispersion Force on Interline Heat Transfer **HT 155**
Madden, C. The Effect of Plastic Strain Followed by Aging on the Torsion Fatigue Resistance of Quenched and Tempered 4340 Steel (TB) **MT 219**
Maewal, A. A Mixture Theory for Quasi-One-Dimensional Diffusion in Fiber-Reinforced Composites **HT 128**; Nonlinear Flexural Vibration of an Elastic Ring (BN) **AM 428**
Mager, T. R. A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) **MT 272**
Magnesium-Aluminum-Silicate
Fracture Strength and Thermal Shock Resistance of Thick And Thin-Wall Magnesium-Aluminum-Silicate Ceramic Heat Regenerators (77-GT-98) **P 136**
Magnetic Fields
The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) **MD 574**
Experimental and Theoretical Study on Magnetoelastic Buckling of a Ferromagnetic Cantilevered Beam-Plate **AM 355**
Magnetic Field Effects on Bubble Growth in Boiling Liquid Metal **HT 466**
Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid With a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**
Special Engineering Problems of TFTR (77-WA/NE-4) **P 417**
Sufficient Conditions for Stability of Rotating Flows **AM 7**
Tokamak Reactors (77-WA/NE-3) **P 412**
Transient Thermal Analysis of Epoxy-Impregnated Superconducting Windings in Linearly Ramped Fields (77-HT-77) **HT 702**
Magnetic Recording Technology
Review of Wear Problems in the Computer Industry (77-Lub-4) **L 189**; (D) **L 195-197**; (AC) **L 198**
Magnetic Suspension
Magnetic Suspension for Low-Speed Vehicles **DS 333**
Magnetic Systems
Structural and Mechanical Design of Tokamaks (77-WA/NE-2) **P 404**
Magnetic Traps
Fusion Energy (77-WA/NE-1) **P 399**
Magnetoelastic Buckling
Experimental and Theoretical Study on Magnetoelastic Buckling of a Ferromagnetic Cantilevered Beam-Plate **AM 355**
Magnetoelastic Interaction
Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid With a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**
Magnetohydrodynamic Lubrication Flow
On the Influence of Finite Wall Conductance and Inertia Effects of Hydrostatic Thrust Bearing **L 271**
Magnetohydrodynamics
Performance and Economics of Advanced Energy Conversion Systems for Coal and Coal-Derived Fuels **P 252**
Mahajan, R. L. Leading Edge Effects in Transient Natural Convection Flow Adjacent to a Vertical Surface (TN) **HT 731**
Mahanti, N. C. Oscillation Modes in Superposed Fluids (BN) **AM 204**
Majumdar, B. C. On the Analytical Solution of Externally Pressurized Porous Gas Journal Bearings (TB) **L 442**; On the Analytical Solution of Externally Pressurized Porous Gas Journal Bearings (TB) **L 442**
Maki, M. A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) **MD 451**
Malik, M. R. The Numerical Prediction of the Turbulent Flow and Heat Transfer in the Entrance Region of a Parallel Plate Duct (D) **HT 561**; (AC) **HT 562**
Malkin, S. Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/PROD-27) **I 297**; Mechanics of Rotary Dressing of Grinding Wheels (77-WA/PROD-23) **I 95**; Orthogonal Machining of Bone **BE 122**; Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/PROD-26) **I 43**
Mall, S. Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 482**
Mallett, R. L. A Theorem on the Free Vibration of Damped Systems (D) **AM 225**; (AC) **AM 226**
Mallik, A. K. Use of Dynamic Absorbers to Control Parametric Instabilities of a Pipe (BN) **AM 949**
Mallow, W. A. Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) **PVT 34**
Mälmeisters, A. *(author)* Mechanik der Polymer Werkstoffe (BR) **AM 456**
Mandibular Growth
Kinematics of Jaw Growth (77-WA/Bio-15) **BE 93**
Manipulated-Variable Softening
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) **DS 50**
Manipulator Development
Curve Linkage Manipulator (GR) **MD 205**
Manjoine, M. J. Fatigue Design Criterion for Pressure Vessel Alloys (D) **PVT 242**
Manning, P. T. Gas Flow Through Cracks **F 453**
Manning, W. R. D. Bursting Pressure as the Basis for Cylinder Design **PVT 374**
Mance, W. P. Progress in Railway Mechanical Engineering (1976-1977 Report of Survey Committee) Cars and Equipment (77-WA/RT-5) **I 79**
Mansell, J. Propagation Fronts Arising From the Impulsive Excitation of Orthogonally Woven Cloth and Nets (BN) **AM 957**
Mansour, M. N. Low NOx Combustion of Paraho Shale Oil in a 45 MW Utility Boiler (77-WA/Fu-1) **P 393**
Manufacturing Errors
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) **MD 77**
Manufacturing Process
Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) **MT 338**
A Method for Optimal Tolerance Selection (D) (AC) **I 390**
Manufacturing Systems
Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/PROD-32) **I 468**
On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/PROD-14) **I 127**
Maraging Steel
Cryogenic Tensile, Fatigue, and Fracture Parameters for a Solution-Annealed 18 Percent Nickel Maraging Steel **MT 189**
Margolin, SH. F. *(editor)* Theory of Mechanisms and Machines (Theory, Example, Graphical Operations)—Translation (GR) **MD 206**
Margolis, D. L. Analytical Modeling of Helical Screw Turbines for Performance Prediction **P 482**
Margolis, S. B. Thermocline Degradation in a Packed Bed Thermal Storage Tank (TN) **HT 371**
Marine Hydrodynamics
Marine Hydrodynamics (BR) **AM 457**
Marine Risers
Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) **PVT 200**
Marine Systems
An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**
Mark, R. Concerning a Creep Surface Derived From a Multiple Integral Representation for 304 Stainless Steel Under Combined Tension and Torsion (78-WA/APM-11) **AM 773**
Marks, C. H. A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) **F 443**; A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) **F 434**; A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) **F 439**
Marmol, R. A. Squeeze Film Damper Characteristics for

Gas Turbine Engines (77-DET-18) **MD 139**

Marsden, J. E. *(author)* The Hopf Bifurcation and Its Application (BR) **AM 234**

Marston, T. U. Assessment of Weld Heat-Affected Zones in a Reactor Vessel Material (78-Mat-14) **MT 267**; A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessels Materials (78-Mat-19) **MT 272**

Martel, J. G. Helium Blistering in Metals (78-Mat-5) **MT 411**

Martin, F. A. Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (D) **L 285**; (AC) **L 286**

Martin, J.-C. E. Optimal Allocation of Actuators for Distributed-Parameter Systems (TB) **DS 227**

Martin, J. T. Review of Wear Problems in the Computer Industry (77-Lub-4) **L 189**; (D) **L 195-197**; (AC) **L 198**

Martin, S. W. Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) **MD 16**

Martin, W. W. Instability of Elastically Suspended Tainter-Gate System Caused By Surface Waves on the Reservoir of a Dam (D) **F 140**; (AC) **F 141**

Maskrey, R. H. A Brief History of Electrohydraulic Servomechanisms **DS 110**

Masood, Z. Chipping and Breakage of Carbide Tools **I 403**

Masri, S. F. Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) **MD 480**; Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) **MD 681**; Response of a Multidegree-of-Freedom System to Nonstationary Random Excitation **AM 649**

Mass

Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 460**

Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**

Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Rock Masses **PVT 277**

Model Formulation of Complex Mechanisms With Multiple Inputs: Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) (AC) **MD 761**

On the Nonlinear Response of a Relief Valve (77-DET-81) **MD 675**

Nonlinear Vibrations of Orthotropic Plates Carrying Concentrated Mass (TB) **I 293**

Torsional Vibrations of a Boiler Feed Pump (77-DET-28) **MD 637**

Mass Diffusion

An Investigation of the Influence of Back Pressure on the Diffusion of Mass and Momentum of Fuel in Diesel Spray **P 241**

Mass Distribution

Uniqueness of Damping and Stiffness Distributions in the Identification of Soil and Structural Systems **AM 181**

Mass Flow

Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) **P 497**

Experiments on the Dynamic Behavior of Cavitating Pumps **F 166**

A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) **F 31**

Measurements of the Performance of an Turbine Stage at Positive and Negative Mass Flow and Rotational Speed (Four-Quadrant Characteristics) (77-GT-14) **P 22**

Measurements of Transition Boiling Data for Water Under Forced Convective Conditions (TN) **HT 382**

Mixing Process Induced by the Vorticity Associated with the Penetration of a Jet into a Cross Flow **P 465**

Pseudo Bond Graphs for Thermal Energy Transport **DS 165**

Second Flow in Rotating Bends **P 553**

A Thermodynamic Study of Heating with Geothermal Energy (77-WA/Ener-1) **P 503**

Mass Flow Rate

The Velocity Characteristics of Ventilated Rooms **F 291**

Mass Properties

Transient Response of a Rotor in Damped Bearings (77-DET-21) **MD 257**

Mass Transfer

Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**

Mass Transfer Technique

Film Cooling of a Gas Turbine Blade **P 476**

Massey, T. H. The Numerical Prediction of Viscous Flow and Heat Transfer in Tube Banks **HT 565**

Mast, P. W. Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) **MT 25**

Masuko, M. Analytical Prediction of Three Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/PROD-9) **I 222**

Matay, I. M. High Frequency Ultrasonic Evaluation of Ceramics for Gas Turbines **P 549**

Material Anisotropy

Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **MT 421**

Material Behavior

An Analysis of High Temperature Metal Creep Part I: Experimental Definition of an Alloy **MT 363**

Dynamic Severity Criterion for Designing Against High Cycle Fatigue (77-DE-28) **MD 10**

On the Uniqueness and Stability of Endochronic Theories of Material Behavior **AM 263**

Material Constitutive Models

The Effect of Material Constitutive Models on Stress Wave Propagation Calculations (77-WA/Mat-8) **MT 84**

Material Cutting and Fracture

Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/PROD-38) **I 88**

Material Damping

Nonlinear Material Damping for Nonsinusoidal Strain **AM 883**

Material Erosion Rate

The Influence of Droplet Size on the Turbine Blading Erosion Hazard **P 561**

Material Flow

Granular Material Flow in Two-Dimensional Hoppers **AM 43**

Material Properties

On the Dynamic Expansion of a Circular Hole in an Infinite Plate of Rate-Sensitive Plastic Material **AM 67**

Saint-Venant's Principle for a Helical Spring **AM 297**

Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**

Material Response

Contrasting Fracture Models For Granite Under Dynamic Loading **MT 287**

Material Substitution

Material Substitution: Availability, Energy and Environmental Factors (CR) **MT 1**

Material Symmetry

On the Symmetry and Stability of Thermoelastic Solids **AM 740**

Material Variability

The Influence of Material Variability on the Predicted Environmental Behavior of Composite Materials (77-WA/Mat-9) **MT 77**

Materials Evaluation Program

Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) **P 704**

Materials Selection

On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/PROD-14) **I 127**

Mates, R. E. Left Ventricular Function: Correlation With Deformation of the Myocardium (77-WA/Bio-11) **BE 99**; (D) (AC) **BE 104**

Mathematical Analysis

Particle Deposition in a Charged Aerosol Flowing Through a Conducting Tube **F 449**

Mathematical Applications

The Mathematics of Finite Elements and Applications II (BR) **AM 232**

Mathematical Programming Techniques

A Generalized Decomposition Procedure and Its Application to Engineering Design (77-DET-62) **MD 739**

Mathematical Trends

Trends in Applications of Pure Mathematics to Mechanics (BR) **AM 456**

Mathews, M. K. Radiation Augmented Fires within Enclosures (TN) **HT 544**

Matrix Brazing

Stratapax Drill Bit for Gulf Coast Drilling (77-Pet-74) (TB) **PVT 234**

Matrix Formulations

Model Formulation of Complex Mechanisms With Multiple Inputs: Part I—Geometry (77-WA/DE-9) **MD 747**

Matrix Methods

The Riccati Transfer Matrix Method (77-DET-32) **MD 297**

Some Sufficient and Some Necessary Conditions for the Stability of Multivariable Systems **DS 214**

Stabilität und Matrizen (in German) (BR) **AM 704**

Matrix Transfer Functions

The Use of Sensitivity Functions to Match Matrix Transfer Functions to Time-Domain Performance Criteria **DS 187**

Matsuki, M. Design and Development of a High-Pressure Combustor for Aero-Gas-Turbines (77-GT-96) **P 129**

Maximum-Energy-Release-Rate Criterion

Fracture Under Combined Loads by Maximum-Energy-Release-Rate Criterion **AM 553**

Maximum Load Designs

Equivalence of a Constrained Minimum Weight and Maximum Column Buckling Load Problem With Solution **AM 159**

Maxwell, R. L. Collapse Test of a Thin-Walled Cylindrical Pressure Vessel with Radially Attached Nozzle **PVT 131**

May, W. B., Jr. Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) **P 497**

Maybe, R. E. An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (D) (AC) **P 689**

Mayes, I. W. The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) **MD 156**

Mayne, R. W. Optimum Design of Control System Compensators **DS 140**

Mazumdar, J. The Dynamic Analysis of Shallow Spherical Shells (BN) **AM 690**

McCabe, D. E. Elastic-Plastic R-Curves (78-Mat-12) **MT 258**

McCormick, B. W. An Experimental Study of Three-Dimensional Characteristics of Propeller Wakes Under Stalling Conditions (D) **F 141**; (AC) **F 142**

McCracken, M. *(author)* The Hopf Bifurcation and Its Application (BR) **AM 234**

McCune, J. E. Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**

McCutchan, D. A. Power System Economics: On Selection of Engineering Alternatives (D) **P 344**; (AC) **P 346**

McDonough, J. M. Heat Transfer and Shear Stress on a Heated Cone (BN) **AM 952**

McElligot, D. M. Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**

McC. Ettles, C. M. The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-20) **MD 156**

McGee, W. M. Growth Characteristics of a Fatigue Crack Approaching and Growing Beneath an Adhesively Bonded Doubler (77-WA/Mat-14) **MT 52**

McGehee, D. Y. The Prediction of Passenger Riding Comfort From Acceleration Data (77-WA/Aut-6) **DS 34**

McGill, D. J. A Note on the Stability of a Gyrostat With a Fixed Point (BN) **AM 676**

McIvor, I. K. The Effect of Spatial Distribution on Dynamic Snap-Through **AM 612**

McLarnan, C. W. Editorial **MD 1**; *(editor)* Editorial/Conference Focus **MD 585**; Journal Operations (Ed) **MD 201**

McLay, R. W. Leibnitz's Rule and the **J**-Integrals (BN) **AM 425**; On Uniform Convergence of the Finite-Element Method (BN) **AM 210**

McLean, L. A. Ride Quality of Autorack Cars (77-WA/RT-7) **I 171**

McMeeking, R. M. Concerning Analysis of Central Burst in Metal Forming (TB) **I 386**

Mean Flow

Prediction of Incompressible Turbulent Separating Flow (78-WA/FE-4) **F 427**

Mean Pressure Deviation

On the Roughness Effect in Hydrodynamic Lubrication **L 176**; (D) (AC) **L 180**

Mean-Stress Criterion

A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**

Mean Structure

Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along a Vertical Isothermal Wall **HT 177**

Mean Temperature Measurements

Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) **I 210**

Mean Velocity Profile

A Theoretical Investigation on the Structure of Fan Wakes (76-WA/FE-22) **F 113**

Measure Surface Temperature
Heat Transfer During Piston Compression **HT 527**
Measured Bed Temperature Profile
Prediction of Temperature Profiles in Fluid Bed Boilers (76-HT-66) **HT 508**
Measured Crack Velocities
Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**
Measured Pressure Profiles
Calculations of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (76-WA/FE-31) **F 355**
Measured Vapor Nucleation Data
Corresponding States Correlations of the Extreme Liquid Superheat and Vapor Subcooling (77-HT-20) **HT 492**
Measured Velocity Values
The Velocity Characteristics of Ventilated Rooms **F 291**
Measurement Data
A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) **F 443**
Measurement Noise
Stored Response Modeling **DS 132**
Measurement Spectra
Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/SOL-1) **P 489**
Measurement Technique
Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) **MD 229**
Instrument for Continuous Measurement of O_2 Consumption and Co_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) **BE 1**
Measurement of the Elastic-Plastic Boundary Around Cold-worked Fastener Holes (78-WA/APM-2) **AM 515**
Measurement of Roller Speed in a Cylindrical Roller Bearing Using a Laser Anemometer **L 486**
Reducing the Temperature at Tool-Chip-Work Contact by Changing the Effective Thermal Conductivity of the Tool (TB) **I 387**
Measurement Variability
The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) **P 630**
Measuring Fiber Size
An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) **I 1**
Meauzé, G. A Method for Testing Cascades with Converging Sidewalls **P 457**
Mechanical Behavior
Mechanical Behavior of Nonlinear Visco-Elastic Celluloid Under Superimposed Hydrostatic Pressure **PVT 271**
Mechanical Components
Development of Test and Analysis Plan for Mechanical Component Reliability **MD 204**
Mechanical Deformation
Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/PROD-29) **I 217**
Mechanical Design
Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) **MD 319**
Structural and Mechanical Design of Tokamaks (77-WA/NE-2) **P 404**
Mechanical Disk Brakes
Straight-Air Disk Brake Systems for Heavy Vehicles (77-DE-23) **MD 113**
Mechanical Disturbance
Some Effects of Mechanically-Produced Unsteady Boundary Layer Flows on Convective Heat Transfer Augmentation **HT 25**
Mechanical Draft Cooling Towers
Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**
Mechanical Energy
The Second Law of Thermodynamics and Cyclic Processes **AM 487**
Mechanical Engineering
Transportation Research and the Role of Dynamic Systems, Measurement, and Control (F) **DS 233**
Mechanical Equipment
Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) **MD 480**
Forced Vibration of Continuous System With Nonlinear Boundary Conditions (77-DET-80) **MD 487**
Mechanical Error Analysis
Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) **MD 732**
Mechanical Load
Creep Relaxation of a Beam of General Cross Section Subjected to Mechanical and Thermal Loads (TB) **MD 626**
Mechanical Loadings
One Dimensional, Linear Dynamic Electromechanical Responses of Ferroelectric Ceramics **AM 749**
Mechanical Models
Thermal Stresses in a Submerged-Arc Welded Joint Considering Phase Transformations **MT 356**
Mechanical Power Transmission
Design and Development of a Segmented Magnet Homopolar Torque Converter (GR) **MD 205**
Mechanical Problems
On the Uniqueness and Stability of Endochronic Theories of Material Behavior **AM 263**
Mechanical Properties
Assessment of Weld Heat-Affected Zones in a Reactor Vessel Material (78-Mat-14) **MT 267**
Cryogenic Tensile, Fatigue, and Fracture Parameters for a Solution-Annealed 18 Percent Nickel Maraging Steel **MT 189**
MPC-6 "Effects of Melting and Processing Variables on Mechanical Properties of Steel" Properties of Extra Low Sulfur Engineering and Die Steels (D) (AC) **MT 223**
Elastic Interface Waves and Sliding Between Two Solids **AM 325**
Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) **PVT 77**
An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**
Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) **MT 338**
Fracture Mechanics of Composite Materials **MT 233**
Irradiation Effects on the Behavior of Structural Materials at Elevated Temperature **MT 121**
The Room Temperature and Elevated Temperature Fracture Toughness Response of Alloy A-286 **MT 195**
Mechanical Pulp
Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/PROD-28) **I 147**
Mechanical Pulping Process
An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/PROD-30) **I 153**
Mechanical Raise Boring
Economic Factors of Mechanical Raise Boring (77-Pet-29) **PVT 98**
Mechanical Reliability
Mechanical Reliability Confidence Limits (77-WA/DE-12) **MD 607**; (D) (AC) **MD 613**
Mechanical Resonance
A Novel Pressure Transducer Using Mechanical Resonance **DS 83**
Mechanical Response
Mechanical Response of the Lungs at High Frequencies **BE 57**
Mechanical Subsystems
Computer Aided Design For Manufacturing-Mechanical. A Bibliography With Abstracts (GR) **MD 293**
Mechanical System
Dynamics of Multirigid-Body Systems (78-WA/APM-10) **AM 889**
Parametererregte Schwingungen (BR) **AM 229**
Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) **MD 492**; (D) (AC) **MD 498**
Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) **MD 311**
Mechanical Vibrations
Roots of Lambda Matrices (78-WA/APM-4) **AM 859**
Mechanically Activated Component
Flank Wear Model of Cutting Tools Using Control Theory (77-WA/PROD-20) **I 103**
Mechanics of Rotary Dressing
Mechanics of Rotary Dressing of Grinding Wheels (77-WA/PROD-23) **I 95**
Mechanism Design
A Rapid Approximate Solution to Davydenko's Lift Mechanism Design Problem (TB) **I 110**
Mechanisms
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) **MD 762**
Control of Clearance Effects in Mechanisms (77-WA/DE-2) **MD 728**
The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) **MD 574**
Flow Excited Vibrations in High-Pressure Turbines (Steam Whirl) **P 219**
Loading Mechanisms in Thawed Permafrost Around Arctic Wells (D) **PVT 320**
Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear **L 492**; (D) (AC) **L 499**
Model Formulation of Complex Mechanisms With Multiple Inputs: Part 1—Geometry (77-WA/DE-9) **MD 747**
Model Formulation of Complex Mechanisms With Multiple Inputs: Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) (AC) **MD 761**
Opening and Gripping Mechanism for Automatic Produce-Bagging Machine That Uses Factory-Roll Polyethylene Net Tubing (GR) **MD 204**
Theory of Mechanisms and Machines (Theory, Example, Graphical Operations)—Translation (GR) **MD 206**
Tool Life Distributions Part 3: Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) **I 193**
Medina, F. D. Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) **L 418**
Meena, B. K. Nonsimilar Laminar Free Convection Flow Along a Nonisothermal Vertical Plate (TN) **HT 163**
Mehta, R. K. The Dynamic Characteristics of O-Ring (77-DET-27) **MD 132**
Meijer, M. C. Constrained Flow Past Cavitating Bluff Bodies (D) **F 254**; (AC) **F 255**
Melrovitch, L. Simulation of Continuous Systems by Periodic Structures **AM 385**
Melting
Analytic Solutions to the Heat Equation Involving a Moving Boundary with Applications to the Change of Phase Problem (the Inverse Stefan Problem) **HT 300**
Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) **HT 531**
Experiments on the Role of Natural Convection in the Melting of Solids **HT 11**
The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**
Effect of Subcooling on Cylindrical Melting **HT 395**
Melting and Natural Convection Due to a Vertical Embedded Heater (TN) **HT 368**
A Note on the General Formulation of Phase Change Problem as Heat Conduction Problem with a Moving Heat Source (TN) **HT 370**
Numerical Method for Multi-Dimensional Freezing Problems in Arbitrary Domains **HT 294**
Rolling Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) **L 226**; (D) **L 232, 233**; (AC) **L 234**
Melting System
Heat Transfer Phenomenology of a Hydrodynamically Unstable Melting System **HT 305**
Member Function Behavior
A New Cumulative Damage Model—Part 3 (78-WA/APM-19) **AM 733**
Membrane Indentation
Indentation of a Membrane on an Elastic Half Space **AM 320**
Membrane Stress
Pressurized Cylindrical Shell With a Rigid Circular Inclusion **PVT 158**
Membrane Surface
Nonlinear Wrinkling of Nonlinear Membranes of Revolution **AM 533**
Membrane Theory
Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**
Memory ERASURE
Cyclic Plasticity for Nonproportional Paths: Part 1—Cyclic Hardening, Erasure of Memory, and Subsequent Strain Hardening Experments (77-WA/Mat-12) **MT 96**
Cyclic Plasticity for Nonproportional Paths: Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) **MT 104**
Mengi, Y. The Influence of the Retardation Time of the Heat Flux on Pulse Propagation (BN) **AM 433**
Mercier, R. J. Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/PROD-26) **I 43**
Merzer, A. Viscoplastic Constitutive Equations for Copper With Strain Rate History and Temperature Effects **MT 388**

Mesh Contact Forces
Critical Speeds, Stability and Response of a Geared Train of Rotors (77-DET-30) **MD 535**; (D) **MD 538**; (AC) **MD 539**
Meshing Surfaces
An Analysis of Undercut Conditions and of Appearance of Contact Lines Envelope Conditions of Gears (77-DET-2) **MD 423**
Mesloh, R. E. Propagating Buckle Arrestors for Offshore Pipelines **PVT 206**
Metal Creep
An Analysis of High Temperature Metal Creep Part I: Experimental Definition of an Alloy **MT 363**; Part II: A Constitutive Formulation and Verification **MT 371**
Metal Crystals
Further Investigation of a New Hardening Law in Crystal Plasticity **AM 500**
Metal Cutting
Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) **MD 92**
Metal Deformation
On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**
Metal Erosion
Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) **HT 531**
Metal Flow
Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) **I 159**
A Numerical Method For Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/PROD-35) **I 413**
Metal Forming
Concerning Analysis of Central Burst in Metal Forming (TB) **I 386**
Metal-Polymer Contacts
Methods of Decreasing Wear in Metal-Polymer Contacts (Er) **L 466**; **L 185**
Metal Removal
Variables Influencing Degradation of SiC Abrasive Papers **L 501**
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/PROD-19) **I 303**; (D) **I 309**; (AC) **I 310**
Metal Sheet
Measurement of the Elastic-Plastic Boundary Around Cold-worked Fastener Holes (78-WA/APM-2) **AM 515**
Metallic Media
Numerical Analysis of Time-Dependent Inelastic Deformation in Metallic Media Using the Boundary-Integral Equation Method **AM 785**
Metallic Structures
A Parametric Study of Fatigue Crack Growth Behavior in Adhesively Bonded Metallic Structures (77-WA/Mat-5) **MT 46**; (D) (AC) **MT 223**
Metallurgical Coatings
Centrifugally Cast Metallurgical Coatings for Wear Resistance in Plastics Molding Machines **L 423**
Metals
An Analysis of High Temperature Metal Creep Part II: A Constitutive Formulation and Verification **MT 371**
Comparison of Dynamic Tear and Charpy-V-Notch Impact Properties of Plate Steels **MT 204**
Correlation of Tempering Effects With Temperature Distribution in Steel Cutting Tools (77-WA/PROD-16) **I 131**
Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-WA/APM-3) **AM 507**
Dynamic Severity Criterion for Designing Against High Cycle Fatigue (77-DE-28) **MD 10**
Experiments on Strain Rate History and Temperature Effects During the Plastic Deformation of Close-Packed Metals **AM 60**
Helium Blistering in Metals (78-Mat-5) **411**
Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/PROD-29) **I 217**
J-Integral Approach to Fracture of Rotating Disk **MT 128**
Notch Effects, Stress State, and Ductility **MT 348**
Meter Pressure Differential
Loss Characteristics of Orifices and Nozzles **F 299**
Meters
A Design Method on Propeller Current Meters (75-WA/FM-5) **F 83**
Methanol Furnace
Radiation From a Methanol Furnace (77-HT-14) **HT 247**
Mewdell, C. G. A Control Algorithm For Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**
Meyer, A. G. *(author)* Sprag Overriding Aircraft Clutch (GR) **MD 205**
Michael, G. J. Development of Gas Turbine Performance Seeking Logic (78-GT-13) **P 571**; (D) (AC) **P 575**
Micro-Bit Research
Techniques of Pilot-Scale Drilling Research (77-Pet-68) **PVT 188**
Microgeometry Effects
Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) **L 156**; (D) (AC) **L 165**
Microlayer Evaporation Heat Transfer
Influence of System Pressure on Microlayer Evaporation Heat Transfer **HT 49**
Microlayers
Experiments and Universal Growth Relations for Vapor Bubbles With Microlayers **HT 41**
Micropolar Elastic Circular Cylinder
On the Flexural Rigidity of a Micropolar Elastic Circular Cylinder (BN) **AM 429**
Microstructural Changes
Correlation of Tempering Effects With Temperature Distribution in Steel Cutting Tools (77-WA/PROD-16) **I 131**
Microstructural Inhomogeneity
Void Growth and Local Necking in Biaxially Stretched Sheets **MT 164**
Microvascular Function
Measurement of Burn-Induced Leakage of Macromolecules in Living Tissue **BE 153**
Microvascular Response
Therapeutic Effects of Postburn Cooling **BE 149**
Mikielewicz, J. A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) **F 395**
Miklowitz-Kolsky Model
A Reexamination of Miklowitz-Kolsky Model (BN) **AM 218**
Miles, C. R. Thermosyphon Models for Downhole Heat Exchanger Applications in Shallow Geothermal Systems **HT 713**
Miller, A. Keith The Influence of Material Variability on the Predicted Environmental Behavior of Composite Materials (77-WA/Mat-9) **MT 77**
Miller, D. S. Conditions for a Pipe to Run Full When Discharging Liquid Into a Space Filled With Gas (D) (AC) **F 136**
Miller, R. K. The Steady State Response of Systems With Hardening Hysteresis (77-DET-71) **MD 193**
Milling Machines
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/PROD-15) **I 137**
Mills, R. G. Tokamak Reactors (77-WA/NE-3) **P 412**
Mills, W. J. The Room Temperature and Elevated Temperature Fracture Toughness Response of Alloy A-286 **MT 195**
Miloh, T. On the Exact Solution for the Two-Sphere Problem in Axisymmetrical Potential Flow **AM 463**; Heat Conduction in Axisymmetric Body-Duct Configuration (TN) **HT 555**
Mine Rescue Operations
A Portable Personal Cooling System for Mine Rescue Operations (77-ENAS-53) **I 53**
Mineral Recovery
Fracture Discontinuities and Structural Analysis in Resource Recovery Endeavors (77-Pet-32) **PVT 2**
Minimum-Commitment Method
On the Minimum-Commitment Method for Correlation of Creep-Rupture Data (TB) (78-Mat-18) **MT 333**
Minimum Weight Designs
Equivalence of a Constrained Minimum Weight and Maximum Column Buckling Load Problem With Solution **AM 159**
Mioduchowski, A. Waves From Suddenly Punched Hole in Finitely Stretched Elastic Sheet **AM 83**
Mishler, H. W. A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**
Miskioglu, I. Temperatures in an Anisotropic Sheet Containing an Insulated Elliptical Hole (TN) **HT 553**
Misra, A. *(reviewer)* Tribology, A Systems Approach to the Science and Technology of Friction, Lubrication and Wear (BR) **MT 336**
Mitchell, L. D. Critical Speeds, Stability and Response of a Geared Train of Rotors (D) **MD 538**; (AC) **MD 539**
Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-69) **PVT 179**
Mitchell, N. A. Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**
Mitchell, R. F. Loading Mechanisms in Thawed Permafrost Around Arctic Wells (D) **PVT 320**
Mitchell, R. K. *(author)* Investigation of a 30,000-RPM Turbine-Speed Hydraulic Pump (GR) **MD 206**
Mitsunaga, A. Developing Region of Laminar Jets With Uniform Exit Velocity Profiles (D) **F 374**; (AC) **F 375**
Mitwally, E. M. Solutions of Laminar Jet Flow Problems for Non-Newtonian Power-Law Fluids **F 363**
Mixed Convection
Mixed Convection About a Sphere with Uniform Surface Heat Flux (TN) **HT 542**
Mixed Dynamics Systems
Model Verification of Mixed Dynamic Systems (77-DET-85) **MD 266**
Mixture Compressibility
Consolidation in Compressible Mixtures **AM 727**
Miya, K. Experimental and Theoretical Study on Magnetoelastic Buckling of a Ferromagnetic Cantilevered Beam-Plate **AM 355**
Miyao, K. Reduction of Stress Concentration Due to Interference Fits in an Infinite Plate With Two Holes **PVT 369**
Mizamoto, H. *(editor)* Strength and Structure of Solid Materials (BR) **AM 231**
Mizushima, Y. A Novel Pressure Transducer Using Mechancial Resonance **DS 83**
Mizutani, K. Influence of Unequal Pedestal Stiffness on the Instability Regions of a Rotating Asymmetric Shaft **AM 400**
Modak, A. T. Radiation Augmented Fires Within Enclosures (TN) **HT 544**
Modal Displacements
Normal Mode Solution of Fluid-Coupled Concentric Cylindrical Vessels (78-PVP-37) **PVT 350**
Modal Method
Modal Method for Free Vibration of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**
Modal Rotordynamics Models
Residual-Flexibility Corrections for Transient Modal Rotordynamics Models (77-DET-31) **MD 251**
Model Lung Alveolus
Air Mixing in a Model Lung Alveolus **BE 211**
Model Verification
Model Verification of Mixed Dynamic Systems (77-DET-85) **MD 266**
Modest, M. F. Squeeze Film Flow in Arbitrarily Shaped Journal Bearings Subject to Oscillations **L 323**; Squeeze Film Flow Between Arbitrary Two-Dimensional Surfaces Subject to Normal Oscillations **L 316**
Modi, V. J. Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**; On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**
Modifications of Conventional Trucks
High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) **I 49**
Modified Force Diagram
Theory of Linear Continuous Extrusion—Linear (77-WA/PROD-17) **I 37**
Modified Governing Equations
Modified Governing Equations for Unsteady Compressible Flow in Ducts **AM 723**
Modular Design Problem
A Generalized Decomposition Procedure and Its Application to Engineering Design (77-DET-62) **MD 733**
Modular Steam Generator
Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) **P 347**
Moe, G. Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) **MD 100**
Moffat, R. J. Experimental Heat Transfer Behavior of a Turbulent Boundary Layer on a Rough Surface With Blowing **HT 134**
Mohamed, M. H. The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-TEX-4) **I 13**
Mohana Kumar, T. C. Influence of Volute Surface Roughness on the Performance of a Centrifugal Pump **F 473**

Moisture Diffusion
A Mixture Theory for Quasi-One-Dimensional Diffusion in Fiber-Reinforced Composites **HT 128**
Moisture Measurements
Moisture Measurements in a Low Pressure Steam Turbine Using a Laser Light Scattering Probe **P 544**
Mojola, O. O. The Viscous Sublayer in a Streamwise Corner (BN) **AM 219**
Molding Machine
Centrifugally Cast Metallurgical Coatings for Wear Resistance in Plastics Molding Machines **L 423**
Mole, C. J. *(author)* Design and Development of a Segmented Magnet Homopolar Torque Converter (GR) **MD 205**
Molecular Weight Polyethylene
The Wear of High Molecular Weight Polyethylene—Part I: The Wear of Isotropic Polyethylene Against Dry Stainless Steel in Unidirectional Motion **L 208**
Mollendorf, J. C. Thermal Stresses From a Moving Band Source of a Semi-Infinite Solid (77-WA/PROD-26) **I 43**
Momentum
An Analysis of the Three-Way Underlapped Hydraulic Spool Servovalve **DS 117**
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/PROD-1) **I 113**
A Novel Physico-Computational Model for Quasi One-Dimensional Gas-Particle Flows (76-WA/FE-36) **F 343**
Monochromatic Indensity Measurements
Radiation From a Methanol Furnace (77-HT-14) **HT 247**
Monotonic Functions
Construction of Nonlinear Monotonic Functions With Selectable Intervals of Almost Constant or Linear Behavior (78-WA/APM-22) **AM 780**
Moodie, T. B. Waves From Suddenly Punched Hole in Finitely Stretched Elastic Sheet **AM 83**
Moody, D. W., Jr. The New Edition of ANSI B31.3—Some Significant Changes **PVT 123**
Mook, D. T. Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**
Moon, F. C. The Coupled Response of a Dynamic Element Riding on a Continuously Supported Beam **AM 864**
Moore, N. B. A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) **PVT 184**
Moradi, J. Y. A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) **MD 292**
Moran, B. A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**
Mori, Y. Experimental Study on Bubble Nucleation in the Oscillating Pressure Field (77-HT-22) **HT 460**
Mori, Y. H. Pool Boiling Heat Transfer to Emulsions **HT 513**
Moriarty, L. *(author)* Design and Fatigue Testing of Integral Armored Servo Actuator Modified Trunnion (GR) **MD 204**
Morrison, J. J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) **MT 248**
Morison-Type Wave Loading
Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) **MD 100**
Moses, C. A. On the Growth of Steam Droplets Formed in a Laval Nozzle Using Both Static Pressure and Light Scattering Measurements **F 311**; (ER) **F 499**
Moss Covered Ground Temperature
Effect of an Elevated Pipeline on Moss Covered Ground Temperature **HT 363**
Mote, C. D., Jr. Analysis of Leg Loading in Snow Skiing **DS 177**; Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/PROD-22) **I 119**
Motion Analysis
A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) **PVT 91**
Motion Spectra
Identification of the Dynamic Characteristics of a Bench-Type Automotive Seat for the Evaluation of Ride Quality **DS 42**
Motomiya, M. Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**
Moving Band Heat Source
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/PROD-26) **I 43**
Moving Boundary
Analytic Solutions to the Heat Equation Involving a Moving Boundary with Applications to the Change of Phase Problem (the Inverse Stefan Problem) **HT 300**
Moving Heat Source
A Note on the General Formulation of Phase Change Problem as Heat Conduction Problem with a Moving Heat Source (TN) **HT 370**
Moving Force
An Elastic Strip Pressed Against an Elastic Half Plane by a Steadily Moving Force **AM 89**
Moving Interface
Effect of Subcooling on Cylindrical Melting **HT 395**
Moving Loads
Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) **MD 507**
Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) **MD 514**
Mow, V. C. The Biomechanical Function of the Collagen Fibril Ultrastructure of Articular Cartilage **BE 105**; Rheological Equations for Synovial Fluids **BE 169**
Mucoglu, A. Mixed Convection about a Sphere with Uniform Surface Heat Flux (TN) **HT 542**
Mud Weight
Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) **PVT 200**
Mudpump Fluid Ends
Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Fluid Ends (77-Pet-42) **PVT 39**
Mueller, T. J. Experimental Observations on the Thermal Fragility of Erythrocytes Including the Effects of Storage and Anticoagulant **BE 223**
Mukherjee, S. Numerical Analysis of Time-Dependent Inelastic Deformation in Metallic Media Using the Boundary-Integral Equation Method **AM 785**
Mulcahy, H. W. Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (D) **I 316**; (AC) **I 317**
Müller, P. C. *(author)* Stabilität und Matrizen (in German) (BR) **AM 704**
Mulligan, J. C. The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**; A Local Nonsimilarity Analysis of Free Convection From a Horizontal Cylindrical Surface (TN) **HT 165**; Transient Free Convection from a Suddenly Heated Horizontal Wire **HT 423**
Multicomponent Seismic Design
Rational and Economical Multicomponent Seismic Design of Piping Systems (TB) **PVT 425**
Multicored Sandwich Beams
Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) **MD 667**
Multidegree-of-Freedom System
Response of a Multidegree-of-Freedom System to Nonstationary Random Excitation **AM 649**
Multi-Dimensional Radiative Transfer
Multi-Dimensional Radiative Transfer in Nongray Gases—General Formulation and the Bulk Radiative Exchange Approximation (77-HT-51) **HT 486**
Multilayered Liquid Films
Wave Motion in Multilayered Liquid Films **AM 25**
Multiparameter Optimization
Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) **MD 303**
Multiple Concentric Cylinders
Stress-Induced Radial Pressure Gradients in Liquid-Filled Multiple Concentric Cylinders (D) **AM 228**
Multiple Cylinder Refrigeration Compressor
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) **MD 599**
Multiple Inputs
Model Formulation of Complex Mechanisms With Multiple Inputs: Part 1—Geometry (77-WA/DE-9) **MD 747**
Multiple Operations
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/PROD-4) **I 356**
Multiple Penetrations
Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) **I 261**; (D) **I 271**; (AC) **I 272**
Multirigid-Body Systems
Dynamics of Multirigid-Body Systems (78-WA/APM-10) **AM 889**
Multiple Inputs
Model Formulation of Complex Mechanisms With Multiple Inputs: Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) (AC) **MD 761**
Multiple Integral Representation
Concerning a Creep Surface Derived From a Multiple Integral Representation for 304 Stainless Steel Under Combined Tension and Torsion (78-WA/APM-11) **AM 773**
Multiple Port Discharge
Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**
Multiple Scattering
Two-Dimensional Multiple Scattering Comparison of Theory with Experiment (77-HT-48) **HT 480**
Multiport Systems
On Gyrobondgraphs and Their Uses **DS 76**
Multi-Rotor Systems
The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) **MD 156**
Multispan Simply Supported Guideway
Stability of a Vehicle on a Multispan Simply Supported Guideway **DS 326**
Multivariable Control Techniques
A Control Algorithm For Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**
Multivariable Systems
Some Sufficient and Some Necessary Conditions for the Stability of Multivariable Systems **DS 214**
Mulville, D. R. Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) **MT 25**; Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) **MT 64**
Munson, B. R. Laminar-Turbulent Flow in a Spherical Annulus **F 281**
Muntasser, M. A. A Local Nonsimilarity Analysis of Free Convection From a Horizontal Cylindrical Surface (TN) **HT 165**
Murakawa, H. Finite Elasticity Solutions Using Hybrid Finite Elements Based on a Complementary Energy Principle (78-WA/APM-1) **AM 539**
Murphy, H. D. Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**
Murray, T. Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/PROD-27) **I 297**; Mechanics of Rotary Dressing of Grinding Wheels (77-PROD-23) **I 95**
Muscle Fiber
Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**
Muscle Forces
Determining Muscle Forces in the Leg During Normal Human Walking—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) **BE 72**
Use of Optimization Techniques to Predict Muscle Forces **BE 88**
Muscle Mechanics
A Thermodynamic Model of Biological Body: Muscle Mechanics **BE 14**
Musculoskeletal Joint Systems
Graphical Interpretation of the Solution to the Redundant Problem in Biomechanics **BE 159**
Musgrave, D. S. A Method of Calculating the Slip Factor of Centrifugal Compressors From Deviation Angle (77-GT-64) **P 121**
Mussulman, R. L. Effect of an Elevated Pipeline on Moss Covered Ground Temperature **HT 363**
Myers, G. E. The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transients **HT 120**
Myocardial Function Replacement
Simulation of Cardiovascular Dynamics With the All-Pneumatic Artificial Ventricle System as a Replacement of the Myocardial Function **BE 35**
Myocardium
Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**

N

Na, T. Y. An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures

(77-WA/DE-13) **MD 614**

Nachman, A. The Sliding of a Rigid Indentor Over a Power Law Viscoelastic Layer **AM 111**

Nachtigal, C. L. Analysis and Design of Machine Tool Chatter Control Systems Using the Regeneration Spectrum **DS 191**; Identification of Machining System Dynamics by Equation Error Minimization (77-WA/PROD-44) **I 332**; (D) (AC) **I 339**; Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/PROD-41) **I 323**

Nagano, K. A Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) **MD 470**

Nagano, Y. Simultaneous Measurements of Velocity and Temperature in Nonisothermal Flows **HT 340**

Nagaraj, H. S. Asperity Interactions In EHD Contacts (77-Lub-19) **L 246**; (D) **L 252**; (AC) **L 253**

Nagatani, T. Experimental Study on Bubble Nucleation in the Oscillating Pressure Field (77-HT-22) **HT 460**

Nagaya, K. Dynamics of Viscoelastic Plate With Curved Boundaries of Arbitrary Shape **AM 629**; Vibrations and Dynamic Response of Membranes With Arbitrary Shape **AM 153**

Nagel, P. P. Predetermination of the Relative Error on the Flow Coefficient of Orifice Meters in Nonstandard Approach Conditions **F 60**

Naghdi, A. K. Closed Form Solutions for Certain Heat Conduction Problems (TN) **HT 558**

Naghdi, P. M. On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**; The Second Law of Thermodynamics and Cyclic Processes **AM 487**

Nagpal, V. A Numerical Method For Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/PROD-35) **I 413**

Nagy, K. Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) **I 459**; (D)(AC) **I 466**

Nair, S. Effect of Stress-Free Edges in Plane Shear of a Rectangular Orthotropic Region **AM 307**

Nakabayashi, K. Frictional Moment of Flow Between Two Concentric Spheres, One of Which Rotates **F 97**

Nakai, T. Ion-Plated Thin Films for Anti-Wear Applications **L 129**

Nakajima, M. Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/PROD-32) **I 468**

Nakamura, T. Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**

Nakayama, T. Deformation of Polymers During Hydrostatic Extrusion **PVT 400**

Narayanamurthy, V. Dynamics of Developing Laminar Non-Newtonian Falling Liquid Films With Free Surface **AM 19**

Narayanan, T. V. Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) **PVT 107**

Narita, M. Turbulence Measurements in a Separated and Reattached Flow Over a Blunt Flat Plate **F 224**

Narrow Annulus

Tube Wall Temperatures of an Eccentrically Located Horizontal Tube Within a Narrow Annulus (TN) **HT 548**

Narrow Passages

Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) **L 47**

Nasburg, R. E. Tailoring the Waveform of a Periodic Flow With a Programmable Damper **F 287**

Nash, D. O. Structural and Cooling Aspects of the Aden Nonaxisymmetric Exhaust Nozzle (77-GT-110) **P 308**

Nassar, E. A. A. M. Simulation of the Influence of Bonding Materials on the Dynamic Behavior of Laminated Composites (78-WA/APM-15) **AM 822**

Nath, G. Nonsimilar Free Convection Flow Along a Nonisothermal Vertical Plate (TN) **HT 163**

Nathoo, N. S. Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part I—A Mathematical Model **DS 311**; Part II—Simulated Versus Experimental Data **DS 319**

Natural Convection

Convection in an Enclosure-Source and Sink Located Along a Single Horizontal Boundary **HT 205**

Development of Wall and Free Plumes Above a Heated Vertical Plate **HT 184**

An Experimental Study of Natural Convection Heat Transfer in Concentric and Eccentric Horizontal Cylindrical Annuli **HT 635**

Experiments on the Role of Natural Convection in the Melting of Solids **HT 11**

Heat Transfer by Natural Convection Between a Vertical Surface and a Stably Stratified Fluid (TN) **HT 378**

Influence of System Pressure on Microlayer Evaporation Heat Transfer **HT 49**

Laminar Natural Convection Heat Transfer in a Horizontal Cavity with Different End Temperatures **HT 641**

Leading Edge Effects in Transient Natural Convection Flow Adjacent to a Vertical Surface (TN) **HT 731**

Melting and Natural Convection Due to a Vertical Embedded Heater (TN) **HT 368**

Natural Convection In Compound Parabolic Concentrators—A Finite-Element Solution **HT 199**

Natural Convection Heat Transfer in Beds of Inductively Heated Particles **HT 78**

Natural Convection in a Horizontal Porous Medium Subjected to an End-to-End Temperature Difference **HT 191**

Variable Physical Properties in Laminar Heating of Pseudoplastic Fluids with Constant Wall Heat Flux **HT 220**

Natural Frequencies

Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/PROD-15) **I 137**

Bifurcations in Dynamical Systems With Internal Resonance (78-WA/APM-12) **AM 895**

Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**

Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) **MD 540**

Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**

Natural Frequencies of Clamped Orthotropic Rectangular Plates With Varying Thickness (78-WA/APM-9) **AM 871**

Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) **MD 319**

The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity **AM 643**

Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) **MD 528**

Natural Gas

Low NOx Combustion of Paraho Shale Oil in a 45 MW Utility Boiler (77-WA/Fu-1) **P 393**

The Use of Liquid Natural Gas as Heat Sink for Power Cycles (77-GT-19) **P 169**

Natural Resources

Performance and Economics of Advanced Energy Conversion Systems for Coal and Coal-Derived Fuels **P 252**

Naik, B. S. Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (D) (AC) **L 90**; Phase Change in Liquid Face Seals (D) (AC) **L 79**

Naudascher, E. Review—Self-Sustaining Oscillations of Flow Past Cavities **F 152**

Navier's Equation

Solution of Navier's Equation in Cylindrical Curvilinear Coordinates **AM 812**

Navier-Stokes Equations

Navier Stokes Equations: Theory and Numerical Analysis (BR) **AM 456**

Nayfeh, A. H. Dynamically Induced Interfacial Stresses in Fibrous Composites (BN) **AM 442**; Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**; Simulation of the Influence of Bonding Materials on the Dynamic Behavior of Laminated Composites (78-WA/APM-15) **AM 822**

Nazli, A. Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) **PVT 344**

Neale, K. W. Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) **PVT 344**

Necati Ozisik, M. A Note on the General Formulation of Phase Change Problem as Heat Conduction Problem with a Moving Heat Source (TN) **HT 370**

Nece, R. E. Frictional Moment of Flow Between Two Concentric Spheres, One of Which Rotates (D) **F 246**; (AC) **F 247**

Necking Curves

On the Theories of Sheet Metal Necking and Forming Limits **MT 303**

Needle Device

A New Hooked Needle Device For Forming Fiber Beards For Length and Strength Measurement (77-Tex-2) **I 5**

Needleman, A. Void Growth and Local Necking in Biaxially Stretched Sheets **MT 164**

Neely, H. H. Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) **P 347**

Negative Mass Flow

Measurements of the Performance of an Turbine Stage at Positive and Negative Mass Flow and Rotational Speed (Four-Quadrant Characteristics) (77-GT-14) **P 22**

Nelson, H. F. Two-Dimensional Multiple Scattering Comparison of Theory with Experiment (77-HT-48) **HT 460**

Nemat-Nasser, S. Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Rock Masses **PVT 277**; Harmonic Waves in Layered Composites: New Bounds on Eigenfrequencies (78-WA/APM-23) **AM 829**

Net Tubing

Opening and Gripping Mechanism for Automatic Produce-Bagging Machine That Uses Factory-Roll Polyethylene Net Tubing (GR) **MD 204**

Nets

Propagation Fronts Arising From the Impulsive Excitation of Orthogonally Woven Cloth and Nets (BN) **AM 957**

Neutrally Buoyant Inflated Cantilevers

Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**

Newman, J. N. *(author)* Marine Hydrodynamics (BR) **AM 457**

Newtonian Fluid

Peristaltic Pumping of a Newtonian Fluid With Particles Suspended in it at Low Reynolds Number Under Long Wavelength Approximations **AM 32**

Response of a Rigid-Plastic Circular Plate in Contact With Newtonian Fluid (BN) **AM 199**

Ng, S. L. Experiments on the Dynamic Behavior of Cavitating Pumps **F 166**

Ng, W. W. L. Measurements of Transition Boiling Data for Water Under Forced Convective Conditions (TN) **HT 382**

Nguyen-Duy, P. The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**

Ni, C. C. An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**

Nicholson, J. W. Stress-Intensity Factors for Arbitrarily Oriented Cracks in Shallow Shells **AM 135**

Nickel-Base Alloys

Effect of Structure on Wear Resistance of Co-, Fe-, and Ni-Base Alloys **L 428**

Nielsen, H. J. Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**

Nielsen, K. W. *(reviewer)* Elasto-Hydrodynamic Lubrication (BR) **L 447**

Nielsen, P. V. The Velocity Characteristics of Ventilated Rooms **F 291**

Nielsen, R. S. Fuel Controller Design in a Once-Through Subcritical Steam Generator System **P 189**

Nigro, F. E. B. A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**

Nikanjam, M. Heat Transfer During Piston Compression **HT 527**

Nimmo, B. A Novel Absorption Regeneration-Thermodynamic Heat Engine Cycle **P 566**

Ning, K. S. Hydrodynamic Stability in Horizontal Fluid Layers with Uniform Volumetric Energy Sources (TN) **HT 729**

Niordson, F. I. A High-Order Theory of Plate Deformation: Part 1: Homogeneous Plates (D) (AC) **AM 702**

Nisbett, E. G. Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) **MT 338**

Nishida, S. Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**

Nishitani, T. Mechanical Behavior of Nonlinear Visco-Elastic Celluloid Under Superimposed Hydrostatic Pressure **PVT 271**

Nitriding

Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) **MD 16**

Nitrogen Oxide

The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) **P 640**

Theoretical Determination of Band Absorption for Nonrigid Rotation with Applications to CO, NO, and CO_2 **HT 230**

Nitrogen Oxide Emission
Low NOx Combustion of Paraho Shale Oil in a 45 MW Utility Boiler (77-WA/Fu-1) **P 393**
Nitrous Oxide
Theoretical Determination of Band Absorption for Nonrigid Rotation with Applications to CO, NO, N_2O, and CO_2 **HT 230**
Noda, N. A Three-Dimensional Treatment of Transient Thermal Stresses in a Circular Cylinder Due to an Arbitrary Heat Supply **AM 817**
Nodal Lines
A Note on Nodal Lines of Rectangular Plates (BN) **AM 691**
Noise Control
Control of Steam Venting Noise in Power Plants (77-IPC-PWR-1) **P 369**
Noise Effect
Control of Clearance Effects in Mechanisms (77-WA/DE-2) **MD 728**
Noise Levels
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) **MD 644**
Noise Reduction
Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**
One Stage and Two Stage Vibration Isolators as Applied to High Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) **MD 33**
Nonaxisymmetric Exhaust Nozzle
Structural and Cooling Aspects of the Aden Nonaxisymmetric Exhaust Nozzle (77-GT-110) **P 308**
Nonaxisymmetric Flow
Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**; The View From the Rotor (AD) **P 615**
Nonaxisymmetric Hydrostatic Pressure
Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) **L 379**; (D) (AC) **L 384**
Nonaxisymmetrically Heated Thick Cylindrical Shells
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) **PVT 107**
Noncircular Ducts
A Correlation for Laminar Hydrodynamic Entry Length Solutions for Circular and Noncircular Ducts **F 177**
Nonconvex Optimal Control
A Transformation Method With Two Parameters for Constrained Optimal Control Problems **DS 124**
Nondestructive Evaluation
A Means of Assessing the Effects of Periodic Proof Testing and NDE on the Reliability of Cyclically Loaded Structures (77-PVP-44) **PVT 150**
Nonelastic Solids
Stress Waves in Nonelastic Solids (BR) **AM 970**
Nongray Gases
Multi-Dimensional Radiative Transfer in Nongray Gases—General Formulation and the Bulk Radiative Exchange Approximation (77-HT-51) **HT 486**
Nonhomogeneous Elastic Rod
Propagation of a Pulse in a Nonhomogeneous Elastic Rod With Varying Cross Section (BN) **AM 942**
Nonhomogeneous Material
Cylindrical Anisotropic Waves in a Nonhomogeneous Material (BN) **AM 687**
Spherical Indentation of Nonhomogeneous Materials (BN) **AM 944**
Nonincreasing Tangential Follower Forces
Stability of a Rectangular Simply Supported Plate Subjected to Nonincreasing Tangential Follower Forces (BN) **AM 223**
Nonisothermal Flows
Simultaneous Measurements of Velocity and Temperature in Nonisothermal Flows **HT 340**
Nonisothermal Thin Needles
Forced Convection Heat Transfer from Nonisothermal Thin Needles **HT 358**
Nonisothermal Vertical Plate
Nonsimilar Laminar Free Convection Flow Along a Nonisothermal Vertical Plate (TN) **HT 163**
Nonlinear Analysis
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**
Nonlinear Boundary Conditions
Forced Vibration of Continuous System With Nonlinear Boundary Conditions (77-DET-80) **MD 487**
Nonlinear Constitutive Relations
Nonlinear Constitutive Relations for Human Brain Tissue **BE 44**
Nonlinear Continuum Theory
On the Symmetry and Stability of Thermoelastic Solids **AM 740**
Nonlinear Controller Synthesis
Developments in Nonlinear Controller Synthesis: An Overview **DS 59**
Nonlinear Damping
First-Passage Time for Oscillators With Nonlinear Damping **AM 175**
Nonlinear Damping Effects
An Experimental Study of First-Passage Failure of a Randomly Excited Structure (78-WA/APM-14) **AM 917**
Nonlinear Digital Dynamic Simulation
Development of Gas Turbine Performance Seeking Logic (78-GT-13) **P 571**; (D) (AC) **P 575**
Nonlinear Dynamical Behavior
Pipes Supported at Both Ends Cannot Flutter **AM 619**
Nonlinear Dynamical Systems
Caratheodory Controllability Criterion for Nonlinear Dynamical Systems **DS 209**
Nonlinear Elastic Deformation
Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**
Nonlinear-Elastic Solids
Finite Elasticity Solutions Using Hybrid Finite Elements Based on a Complementary Energy Principle (78-WA/APM-1) **AM 539**
Nonlinear Elastodynamics
Finite-Element Methods for Nonlinear Elastodynamics Which Conserve Energy **AM 366**
Nonlinear Flexural Vibration
A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**
Nonlinear Flexural Vibration of an Elastic Ring (BN) **AM 428**
Nonlinear Formulation
Determination of Admissible Temperature Increases to Prevent Vertical Track Buckling **AM 565**
Nonlinear Kinematics
Nonlinear Kinematics of Wheel-Rail Contact **AM 664**
Nonlinear Material Damping
Nonlinear Material Damping for Nonsinusoidal Strain **AM 883**
Nonlinear Membrane
On the Contact Problem of a Highly Inflated Spherical Nonlinear Membrane (BN) **AM 202**
Nonlinear Monotonic Functions
Construction of Nonlinear Monotonic Functions With Selectable Intervals of Almost Constant or Linear Behavior (78-WA/APM-22) **AM 780**
Nonlinear Oscillators
Response Envelope Statistics for Nonlinear Oscillators With Random Excitation **AM 170**; (D) (AC) **AM 964**
Nonlinear Problems
A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) **MD 292**
Nonlinear Programming Problem
Optimum Design of Bridge Girders for Electric Overhead Traveling Cranes (76-WA/DE-28) **I 375**
Nonlinear Programming Techniques
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/PROD-4) **I 356**
Nonlinear Rectangular Beam
Bending of a Nonlinear Rectangular Beam in Large Deflection (BN) **AM 213**
Nonlinear Rectangular Plate
Stability of a Nonlinear Rectangular Plate **AM 583**
Nonlinear Response
On the Nonlinear Response of a Relief Valve (77-DET-81) **MD 675**
Nonlinear Systems
Stationary Response of a Randomly Parametric Excited Nonlinear System (78-WA/APM-13) **AM 910**
Stored Response Modeling **DS 132**
Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique **AM 393**
Nonlinear Systems Analysis
Nonlinear Systems Analysis (BR) **DS 161**
Nonlinear Vibration Neutralizer
Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) **MD 681**
Nonlinear Vibrations
Nonlinear Vibrations of Orthotropic Plates Carrying Concentrated Mass (TB) **I 293**
Nonlinear Visco-Elastic Celluloid
Mechanical Behavior of Nonlinear Visco-Elastic Celluloid Under Superimposed Hydrostatic Pressure **PVT 271**
Nonlinear Wrinkling
Nonlinear Wrinkling of Nonlinear Membranes of Revolution **AM 533**
Nonlinearities
Power Spectral Density for Constrained Long Wavelength Guideway Irregularities (77-WA/Aut-13) **DS 18**
Nonmetallic Materials
Tool Life Distributions Part 4: Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) **I 201**
Non-Newtonian Falling Liquid Films
Dynamics of Developing Laminar Non-Newtonian Falling Liquid Films With Free Surface **AM 19**
Non-Newtonian Power Law Fluids
Solutions of Laminar Jet Flow Problems for Non-Newtonian Power-Law Fluids **F 363**; (D) (AC) **F 500**
Nonprismatic Strut
An Euler Buckling Eigensystem for a Nonprismatic Strut (BN) **AM 439**
Nonproportional Paths
Cyclic Plasticity for Nonproportional Paths: Part 1—Cyclic Hardening, Erasure of Memory, and Subsequent Strain Hardening Experiments (77-WA/Mat-12) **MT 96**; Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) **MT 104**
Nonsinusoidal Strain
Nonlinear Material Damping for Nonsinusoidal Strain **AM 883**
Nonstandard Approach Conditions
Predetermination of the Relative Error on the Flow Coefficient of Orifice Meters in Nonstandard Approach Conditions **F 60**
Nonstationary Random Excitation
Response of a Multidegree-of-Freedom System to Nonstationary Random Excitation **AM 649**
Nonsteady Forces
Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy **P 525**
Non-Symmetric Convective Heat Transfer
Thermal Response of Slabs Subjected to Non-Symmetric Convective Heat Transfer (78-DE-8) **MD 706**
Nonuniform Cascades
Vibratory Forcing Functions Produced by Nonuniform Cascades (77-GT-57) **P 82**
Nonuniform Heating
Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**; (Er) **HT 367**
Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**
Nonuniform Rotating Disturbances
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**
Normal Mode Solution
Normal Mode Solution of Fluid-Coupled Concentric Cylindrical Vessels (77-PVP-37) **PVT 350**
Norman, N. E. Economic Factors of Mechanical Raise Boring (77-Pet-29) **PVT 98**
Norris, D. M., Jr. A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**
Notch Effects
Notch Effects, Stress State, and Ductility **MT 348**
Notch Toughness
Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) **MT 338**
Notched Gears
The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) **MD 417**
Nowacki, W. K. *(author)* Stress Waves in Nonelastic Solids (BR) **AM 970**
Nozzle Cracks
Stress Intensity Factors for Reactor Vessel Nozzle Cracks **PVT 141**
Nozzles
Aerodynamic Design and Verification of a Two-Stage Turbine With a Supersonic First Stage **P 197**
Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) **F 265**; (D) **F 274**; (AC) **F 275**
Calculations of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (76-WA/FE-31) **F 355**
CAVIJET™ Augmented Deep-Hole Drilling Bits

(77-Pet-54) **PVT 52**
Choked Expansion of Subcooled Water and the I.H.E. Flow Model **HT 275**
Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**
Developing Region of Laminar Jets With Uniform Exit Velocity Profiles **F 55**
Experimental Study of a Solid-Gas Jet Issuing Into a Transverse Stream (78-WA/FE-2) **F 333**; (D) **F 338**; (AC) **F 339**
On the Growth of Steam Droplets Formed in a Laval Nozzle Using Both Static Pressure and Light Scattering Measurements **F 311**; (Er) **F 499**
Loss Characteristics of Orifices and Nozzles **F 299**
Lower-Bound Limit Pressures for the Cylinder-Cylinder Intersection: A Parametric Survey **PVT 65**
Stiffness Coefficients and Allowable Loads for Nozzles in Flat-Bottom Storage Tanks (77-PVP-19) **PVT 389**
Structural and Cooling Aspects of the Aden Nonaxisymmetric Exhaust Nozzle (77-GT-110) **P 308**
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) **PVT 134**
Wave Propagation and Instability in a Circular Semi-Infinite Liquid Jet Harmonically Forced at the Nozzle **AM 469**

Nuclear Fusion
Tokamak Reactors (77-WA/NE-3) **P 412**

Nuclear Power
Power Suppliers Need Nuclear (IPT) **PVT 326**

Nuclear Power Piping
Thermal Response of Slabs Subjected to Non-Symmetric Convective Heat Transfer (78-DE-8) **MD 706**

Nuclear Power Plant Components
Rules for Inservice Inspection for Nuclear Power Plant Components **PVT 313**

Nuclear Power Plants
Forced Vibration of Continuous System With Nonlinear Boundary Conditions (77-DET-80) **MD 487**
Fuel Controller Design in a Once-Through Subcritical Steam Generator System **P 189**
Plastic Collapse of Oval Straight Tubes Under External Pressure (77-PVP-57) **PVT 46**

Nuclear Power Reactors
Pressure Tubes: The Pressure Vessels in the CANDU Nuclear Power Reactor **PVT 328**

Nuclear Pressure Vessels
A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) **MT 272**

Nuclear Reactors
Early Response of Hot Water to Sudden Release from High Pressure **HT 473**
Irradiation Effects on the Behavior of Structural Materials at Elevated Temperatures **MT 121**
Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-6) **P 347**

Nuclear Station Load Cycling
A Control Algorithm For Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**

Nucleate Boiling
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**
On the Influence of Surface Conditions in Nucleate Boiling—the Concept of Bubble Flux Density **HT 618**

Nucleate Boiling Heat Transfer
Magnetic Field Effects on Bubble Growth in Boiling Liquid Metals **HT 466**

Nucleate Pool Boiling
On the Mikic-Rohsenow Pool Boiling Correlation (TN) **HT 733**

Nucleation Sites
Spatial Distribution of Active Sites and Bubble Flux Density **HT 56**

Nucleation Temperatures
Corresponding States Correlations of the Extreme Liquid Superheat and Vapor Subcooling (77-HT-20) **HT 492**

Numerical Analysis
Experimental and Theoretical Study on Magnetoelastic Buckling of a Ferromagnetic Cantilevered Beam-Plate **AM 355**
Navier Stokes Equations: Theory and Numerical Analysis (BR) **AM 456**
Numerical Analysis of Spectral Methods: Theory and Application **AM 969**
Numerical Analysis of Time-Dependent Inelastic Deformation in Metallic Media Using the Boundary-Integral Equation Method **AM 785**

Numerical Beating Phenomenon
Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 2: Error Propagation **AM 803**

Numerical Calculations
Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) **MD 242**
Dynamics of Viscoelastic Plate With Curved Boundaries of Arbitrary Shape **AM 629**
Finite-Element Methods for Nonlinear Elastodynamics Which Conserve Energy **AM 366**
A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**
Reduction of Stress Concentration Due to Interference Fits in an Infinite Plate With Two Holes **PVT 369**

Numerical Computations
Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**
Numerical Method for Multi-Dimensional Freezing Problems in Arbitrary Domains **HT 294**

Numerical Control
Machine Automation and Numerical Control (GR) **MD 203**

Numerical Control Machine Tools
The Optimal Machine Tool Control Problem **DS 170**

Numerical Data
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/PROD-4) **I 356**

Numerical Evaluation
Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) **MD 681**

Numerical Examples
Implicit-Explicit Finite Elements in Transient Analysis: Implementation and Numerical Examples **AM 375**
Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) **MD 732**

Numerical Illustrations
Analytic Solutions to the Heat Equation Involving a Moving Boundary with Applications to the Change of Phase Problem (the Inverse Stefan Problem) **HT 300**

Numerical Instability
The Riccati Transfer Matrix Method (77-DET-32) **MD 297**

Numerical Integration
The Effect of Spatial Distribution on Dynamic Snap-Through **AM 612**
Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates **AM 521**

Numerical Methods
Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**
Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) **MD 667**
Numerical Methods in Fluid Dynamics (BR) **AM 704**, **DS 161**
Roots of Lambda Matrices (78-WA/APM-4) **AM 859**
A Transformation Method With Two Parameters for Constrained Optimal Control Problems **DS 124**

Numerical Model
The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) **MD 574**

Numerical Modelling
Numerical Modelling of Unsteady, Separated Viscous Flow (D) **F 138**; (AC) **F 139**
Observations on Numerical Modeling of an Obtuse Corner of a Simply Supported Plate (BN) **AM 689**

Numerical Optimization
A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) **MD 292**

Numerical Prediction
The Numerical Prediction of the Turbulent Flow and Heat Transfer in the Entrance Region of a Parallel Plate Duct (D) **HT 561**; (AC) **HT 562**
The Numerical Prediction of Viscous Flow and Heat Transfer in Tube Banks **HT 565**

Numerical Procedure
Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**

Numerical Results
Annular Dome Subjected to Uniform Load Over an Eccentric Circular Area **AM 845**
Determination of Unknown Coefficients in Parabolic Operators from Overspecified Initial-Boundary Data **HT 503**
Forced Vibration of Continuous System With Nonlinear Boundary Conditions (77-DET-80) **MD 487**
Particle Deposition in a Charged Aerosol Flowing Through a Conducting Tube **F 449**
Solution of Navier's Equation in Cylindrical Curvilinear Coordinates **AM 812**
On the Stress Field and Surface Deformation in a Half Space With a Cuboidal Zone in Which Initial Strains Are Uniform **AM 302**
A Three-Dimensional Treatment of Transient Thermal Stresses in a Circular Cylinder Due to an Arbitrary Heat Supply **AM 817**

Numerical Solution
Approximate Numerical Solutions for Two-Dimensional Potential Flow Problems (TB) **F 122**
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**
The Dynamic Hole Expansion Problem for a Plate of Elastic-Perfectly Plastic Material (BN) **AM 961**
Dynamic Stress Concentration Around Two Coplanar Griffith Cracks in an Infinite Elastic Medium **AM 803**
Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Rock Masses **PVT 277**
Influence of Unequal Pedestal Stiffness on the Instability Regions of a Rotating Asymmetric Shaft **AM 400**
The Interface Crack in a Shear Field **AM 287**
Laminar Shear Layer Due to a Thin Flat Plate Oscillating With Zero Mean Velocity (78-WA/FE-16) **F 367**
Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid With a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**
Optimal Shape of Shallow Circular Arches Against Snap-Buckling **AM 591**
A Slip Model for Finite-Element Plasticity **AM 527**
Stress in Glass Fibers Induced by the Draw Force (78-WA/APM-21) **AM 765**
Stress Singularity at the Corner of a Wedge-Shaped Crack or Inclusion (78-WA/APM-6) **AM 791**
Sudden Appearance of a Crack in a Stretched Finite Strip **AM 277**
The Theory of Approximate Methods and Their Application to the Numerical Solution of Singular Integral Equations (BR) **AM 230**
On the Uniqueness and Stability of Endochronic Theories of Material Behavior **AM 263**

Numerical Solution Procedure
Flow in Finite-Width, Thrust Bearings Including Inertial Effects I—Laminar Flow **L 330**

Numerical Study
A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**

Numerical Techniques
Low Frequency Bloch Waves for Wave Equations Whose Speed Is a Deterministic, or Randomlike, Periodic Function **AM 331**

Nusselt Numbers
Correlation Equations for Turbulent Thermal Convection in a Horizontal Fluid Layer Heated Internally and from Below **HT 416**
An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition from Laminar Forced Convection to Turbulent Free Convection over a Horizontal Isothermally Heated Plate **HT 429**
Free Convection Across Inclined Air Layers with One Surface V-Corrugated **HT 410**
Heat Transfer Phenomenology of a Hydrodynamically Unstable Melting System **HT 305**
Laminar Boundary Layer Transfer over Rotating Bodies in Forced Flow **HT 496**
A Surface Rejuvenation Model for Turbulent Heat Transfer in Annular Flow With High Prandtl Numbers **HT 92**
Transient Free Convection from a Suddenly Heated Horizontal Wire **HT 423**
Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**

O

O-Rings
The Dynamic Characteristics of O-Ring (77-DET-27) **MD 132**

Oba, R. Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**

Oblique Cutting
On a New Model of Oblique Cutting (77-WA/PROD-6) **I 287**

Obtuse Corner
Observations on Numerical Modeling of an Obtuse Corner of a Simply Supported Plate (BN) **AM 689**
O'Connell, L. G. *(author)* Battery-Flywheel Hybrid Electric Power System for Near Term Application. Volume 2: System Design (GR) **MD 204**
Odell, E. I. A Study of Wall Ironing by the Finite Element Technique (77-WA/PROD-8) **I 31**; Deformations and Stresses in Soft Body Tissues of a Sitting Person **BE 79**
Oden, J. T. *(reviewer)* The Finite Element Method for Elliptic Problems (BR) **AM 968**; *(reviewer)* The Mathematics of Finite Elements and Applications II (BR) **AM 232**
Odi-Owei, S. Traction Behavior in Sliding ehl Contacts (77-Lub-5) **L 115**
O'Donnell, W. J. Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) **P 356**
Offner, D. H. Determining the Coefficient of Friction for Rolling Disks (77-Lub-11) **L 25**
Offset Circular Whirl Orbits
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) **MD 549**
Offshore Pipelines
Propagating Buckle Arrestors for Offshore Pipelines **PVT 206**
Offshore Platform
The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments **PVT 297**
Ogure, N. J-Integral Approach to Fracture of Rotating Disk **MT 128**
Oh, K. P. A Weakest-Link Model for the Prediction of Fatigue Crack Growth Rate **MT 170**
Ohanehi, D. C. Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-69) **PVT 179**
Ohashi, S. Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) **MD 468**
Ohga, J. A Novel Pressure Transducer Using Mechanical Resonance **DS 63**
Ohmae, N. Ion-Plated Thin Films for Anti-Wear Applications **L 129**; Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear (D) (AC) **L 499**
Ohtsubo, H. Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Rock Masses **PVT 277**; Stress Analysis of Pipe Bends by Ring Elements **PVT 112**
Oil
Low NOx Combustion of Paraho Shale Oil in a 45 MW Utility Boiler (77-WA/Fu-1) **P 393**
Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) **PVT 34**
Oil Emulsion
Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) **L 304**; (D) (AC) **L 307**
Oil Film Bearings
The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) **MD 156**
Oil-Film Dampers
An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) **MD 216**
Experiments on the Transient Response of Oil-Film Dampers (77-GT-31) **P 30**
Oil Films
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) **MD 440**
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) **MD 549**
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) **L 261**; (D) **L 269**; (AC) **L 270**
Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) **L 386**; (D) **L 393**; (AC) **L 394**
Oil Jet Velocity
Study of Lubricant Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) **MD 61**; (D) **MD 68**; (AC) **MD 68**
Oil-Lubricated Bearings
On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) **L 296**; (D) **L 302**; (AC) **L 303**
Oil Pressure
Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**
On-Board Flywheel Storage
Optimal Control of On-Board and Station Flywheel Storage for Rail Transit Systems **DS 284**
Onischak, M. Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAs-54) **I 383**
O'Neill, M. W. Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) **PVT 194**
Open-End Spinning
The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-TEX-4) **I 13**
Opening Room Blends
Combining of Opening Room Blends of Cotton and Polyester (77-TEX-5) **I 21**
Optical Conditions
Multi-Dimensional Radiative Transfer in Nongray Gases—General Formulation and the Bulk Radiative Exchange Approximation (77-HT-51) **HT 486**
Optical Displacement Sensor
An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**
Optical Measurement Equipment
Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/SOL-1) **P 489**
Optical Method
The End-Values of Distributed Loads in Half Planes by Caustics **AM 313**
Optical Properties
The Effect of the London-Van Der Waals Dispersion Force on Interline Heat Transfer **HT 155**
Optical Scanning Technique
An Optical Scanning Technique for Measuring Fiber Size (77-TEX-1) **I 1**
Optical Systems
Hydraulic Actuators for Active Optical Systems (GR) **MD 204**
Optimal Allocation
Optimal Allocation of Actuators for Distributed-Parameter Systems (TB) **DS 227**
Optimal Control
Analysis and Design of Machine Tool Chatter Control Systems Using the Regeneration Spectrum **DS 191**
Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) **MD 173**
A Control Algorithm For Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/PROD-33) **I 318**
Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) **DS 24**
Optimal Control of On-Board and Station Flywheel Storage for Rail Transit Systems **DS 284**
Quasi-Time-Optimal Feedback Control of Some Fifth-Order Systems **DS 201**
Steering Controller Design For Automated Guideway Transit Vehicles **DS 1**
Stored Response Modeling **DS 132**
A Transformation Method With Two Parameters for Constrained Optimal Control Problems **DS 124**
Optimal Design
Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) (D) (AC) **MD 498**
Optimal Feedback Control
A State-Constrained Approach to Vehicle-Follower Control for Short Headway Automated Transit Systems **DS 291**
Optimal Machine Tool Control
The Optimal Machine Tool Control Problem **DS 170**
Optimal Machining Speed
Machine Loading and Product-Mix Analysis for Group Technology (77-WA/PROD-21) **I 370**
Optimal Sensor Locations
A Methodology for Optimal Sensor Locations for Identification of Dynamic Systems **AM 188**
Optimal Shape
Optimal Shape of Shallow Circular Arches Against Snap-Buckling **AM 591**
Optimal Tolerance
A Method for Optimal Tolerance Selection (D) (AC) **I 390**
Optimality Criterion Techniques
Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) **MD 319**
Optimization
Application of Goal Programming to Machinability Data Optimization (77-DET-19) **MD 296**
On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/PROD-14) **I 127**
Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) **MD 303**
Determining Muscle Forces in the Leg During Normal Human Walking—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) **BE 72**
Development of Gas Turbine Performance Seeking Logic (78-GT-13) **P 571**; (D) (AC) **P 575**
Developments in Nonlinear Controller Synthesis: An Overview **DS 59**
Equivalence of a Constrained Minimum Weight and Maximum Column Buckling Load Problem With Solution **AM 159**
Optimization of Cold Rolling by Nonlinear Programming (77-WA/PROD-25) **I 186**
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) **MD 500**
Optimization of Rail Vehicle Operating Speed With Practical Constraints (78-WA/DSC-28) **DS 260**
Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) **I 311**; (D) **I 316**; (AC) **I 317**
Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) **MD 311**
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/PROD-15) **I 303**; (D) **I 309**; (AC) **I 310**
A Thermodynamic Study of Heating with Geothermal Energy (77-WA/Ener-1) **P 503**
Use of Optimization Techniques to Predict Muscle Forces **BE 88**
Optimization Algorithm
A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) **MD 292**
Optimization Procedure
Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-88) **MD 274**
Optimization Techniques
A Generalized Decomposition Procedure and its Application to Engineering Design (77-DET-62) **MD 739**
Graphical Interpretation of the Solution to the Redundant Problem in Biomechanics **BE 159**
Optimized Structural Design
Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**
Optimum Bearing Damping
Optimum Bearing and Support Damping for Unbalance Response and stability of Rotating Machinery (77-GT-27) **P 89**
Optimum Design
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/PROD-15) **I 137**
Optimum Design of Bridge Girders for Electric Overhead Traveling Cranes (76-WA/DE-28) **I 375**
Optimum Design of Control System Compensators **DS 140**
A Strategy for the Optimum Design of Acoustic Space (77-DET-44) **MD 411**
Optimum Error Control
Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 2: Error Propagation **AM 603**
Optimum Machining Conditions
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/PROD-4) **I 356**
Optimum Parameter Values
Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/PROD-41) **I 323**
Optimum Pressure Recovery
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**
Orbit Peturbation
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) **L 369**; (D) (AC) **L 377**
Orbital Plane
A Comparative Study of Liapunov Stability Analyses of Flexible Damped Satellites **AM 657**
Orifice Meters
Predetermination of the Relative Error on the Flow Coefficient of Orifice Meters in Nonstandard Approach

Conditions **F 60**

Orifice Plate
Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**

Orifice Plate Geometry
A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**

Orifices
Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) **MD 236**
Loss Characteristics of Orifices and Nozzles **F 299**

Orszag, S. A. *(author)* Numerical Analysis of Spectral Methods: Theory and Application (BR) **AM 969**

Orthogonal Machining
Orthogonal Machining of Bone **BE 122**

Orthagonally Woven Cloth
Propagation Fronts Arising From the Impulsive Excitation of Orthogonally Woven Cloth and Nets (BN) **AM 957**

Orthomorphic Rheological Model
An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/PROD-30) **I 153**

Orthotropic Plate Theory
Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**

Orthotropic Plates
Nonlinear Vibrations of Orthotropic Plates Carrying Concentrated Mass (TB) **I 293**

Orthotropic Rectangular Plates
Natural Frequencies of Clamped Orthotropic Rectangular Plates With Varying Thickness (78-WA/APM-9) **AM 871**

Orthotropic Region
Effect of Stress-Free Edges in Plane Shear of a Rectangular Orthotropic Region **AM 307**

Orthotropic Shallow Spherical Shells
Snap-Buckling of Orthotropic Shallow Spherical Shells (BN) **AM 445**

Orthotropic Solids
On Rigid Elliptic Inclusions in Orthotropic Solids (BN) **AM 683**

Orthotropic Strip
The Problem of Internal and Edge Cracks in an Orthotropic Strip (D) **AM 228**

Osaka, Y. Analysis of the Flow-Type Manufacturing System Using the Cyclic Queuing Theory (77-WA/PROD-32) **I 468**

Oscillating Cutting Forces
Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) **MD 92**

Oscillating Cylinders
The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments **PVT 297**

Oscillating Flap
The Flapwing, A Unique Fluid Machine Element **F 237**

Oscillating Pressure Field
Experimental Study on Bubble Nucleation in the Oscillating Pressure Field (77-HT-22) **HT 460**

Oscillation Modes
Oscillation Modes in Superposed Fluids (BN) **AM 204**

Oscillations
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) **MD 762**
Canine Pulmonary Input Impedance Measured by Transient Forced Oscillations **BE 67**
First-Order Pump Surge Behavior (77-WA/FE-12) **F 459**
Heat Transfer from a Cylinder Oscillating in a Cross-Flow **HT 684**
Influence of Secondary Effects on Free Torsional Oscillations of Thin-Walled Open Section Beams (BN) **AM 681**
Lower Bounds for Gravest Torsional Frequencies (BN) **AM 197**
Review—Self-Sustaining Oscillations of Flow Past Cavities **F 152**
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**
Squeeze Film Flow Between Arbitrary Two-Dimensional Surfaces Subject to Normal Oscillations **L 316**
Squeeze Film Flow in Arbitrarily Shaped Journal Bearings Subject to Oscillations **L 323**

Oscillators
First-Passage Time for Oscillators With Nonlinear Damping **AM 175**
Response Envelope Statistics for Nonlinear Oscillators With Random Excitation **AM 179**; (D) (AC) **AM 964**
The Response of an Oscillator With Bilinear Hysteresis to Stationary Random Excitation **AM 923**

Oscillatory Drive System
Experimentally Determined Stability Parameters of a Subsonic Cascade Oscillating Near Stall (77-GT-47) **P 111**

Oscillatory Process
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) **DS 50**

Oscillatory Singularities
The Interface Crack in a Shear Field **AM 287**

Oscillatory Temperature
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**

Osman, A. E. M. Determination of Dynamic Characteristics of an Impact Forming Machine Structure (77-WA/Prod-5) **I 434**

Osman, M. O. M. Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) **MD 303**

Ostiguy, G. L. Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) **MD 619**

O'Shea, D. C. Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) **L 418**

O'Sullivan, M. J. Convection in a Porous Medium Heated from Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient (77-HT-56) **HT 448**

Ota, H. Influence of Unequal Pedestal Stiffness on the Instability Regions of a Rotating Asymmetric Shaft **AM 400**; Turbulence Measurements in a Separated and Reattached Flow Over a Blunt Flat Plate **F 224**

Otomi, K. The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity **AM 643**

Ou, S. A. Vortex and Induced Pressures in a Model of the Aortic Valve **BE 216**

Ouligian, G. Response of a Realistic Human Head-Neck Model to Impact **BE 25**

Out-of-Plane Bending
Influence of Rotatory Inertia on Steady-State Crack Propagation in a Finite Plate Subjected to Out-of-Plane Bending **AM 130**

Outlet Plenum Geometry
Interferometric Investigation of Turbulently Fluctuating Temperature in an LMFBR Outlet Plenum Geometry (76-WA/HT-82) **HT 334**

Output-Oriented Computer Model
Graphical Output-Oriented Computer Model of a Railroad Freight Car With Conventional Trucks (77-RT-11) **I 67**

Oval Cylindrical Shells
MODAL Method for Free Vibration of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**

Oval Straight Tubes
Plastic Collapse of Oval Straight Tubes Under External Pressure (77-PVP-57) **PVT 46**

Overburden Stability
An Assessment of Overburden Stability in the In-Situ Gasification of Texas Lignite **PVT 285**

Overfire Region
An Investigation of the Laminar Overfire Region Along Upright Surfaces (77-HT-68) **HT 112**

Overhaul Cost Reduction
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) **P 691**; (D) (AC) **P 697**

Overhead Traveling Cranes
Optimum Design of Bridge Girders for Electric Overhead Traveling Cranes (76-WA/DE-28) **I 375**

Overshoot Process
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) **DS 50**

Oxygen
Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) **BE 1**

P

Package Boilers
Considerations When Converting Industrial Plants to Coal Firing (77-IPC-Fu-1) **P 374**

Pad Bearings
Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) **L 279**; (D) **L 285**; (AC) **L 286**

Pagni, P. J. Laminar Mixed-Mode, Forced and Free, Diffusion Flames **HT 253**

Païdoussis, M. P. Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) **MD 328**

Palcza, J. L. Structural and Cooling Aspects of the Aden Nonaxisymmetric Exhaust Nozzle (77-GT-110) **P 308**

Parmidi, M. R. Nonlinear Constitutive Relations for Human Brain Tissue **BE 44**; (Er) **BE 66**

Pampreen, R. C. A Method of Calculating the Slip Factor of Centrifugal Compressors From Deviation Angle (77-GT-64) **P 121**

Pan, C. H. T. Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) **L 369**; (D) (AC) **L 377**

Pancake Absorber
Performance Analysis of a Pancake Absorber-Helical Heat Exchanger for a Solar Concentrator **P 178**

Pandit, S. M. Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) **I 318**; Identification of Machining System Dynamics by Equation Minimization (D) (AC) **I 339**

Pang, Y. A Surface Rejuvenation Model for Turbulent Heat Transfer in Annual Flow With High Prandtl Numbers **HT 92**

Pao, Y.-H. Determination of Transient Responses of a Thick-Walled Spherical Shell by the Ray Theory **AM 114**; *(reviewer)* Unidirectional Wave Motions (BR) **AM 969**

Papacostas, D. T. The Use of Sensitivity Functions to Match Matrix Transfer Functions to Time-Domain Performance Criteria **DS 187**

Paper Length Policy
New Paper Length Policy (Ed) **F 2**

Pappas, M. A Boundary Tracking Optimization Algorithm for Constrained Nonlinear Problems (77-DET-42) **MD 292**

Parabolic Concentrators
Natural Convection In Compound Parabolic Concentrators—A Finite-Element Solution **HT 199**

Parabolic Operators
Determination of Unknown Coefficients in Parabolic Operators from Overspecified Initial-Boundary Data **HT 503**

Parabolic System
Nonlinear Wrinkling of Nonlinear Membranes of Revolution **AM 533**

Parallel Flow Modification
Vertical Channel Parallel Flow Modification Associated With Density Extremum (TB) **F 128**

Parallel-Flow Stability Analysis
Nonparallel Effects on the Stability of Jet Flows (78-WA/APM-16) **AM 717**

Parallel Plate Duct
The Numerical Prediction of the Turbulent Flow and Heat Transfer in the Entrance Region of a Parallel Plate Duct (D) **HT 561**; (AC) **HT 562**

Parallel Plates
Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**

Parallel Shear Flow
Sufficient Conditions for Stability of Rotating Flows **AM 7**

Parameter Estimation
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/PROD-33) **I 318**

Parameter Identification
Analysis and Design of Machine Tool Chatter Control Systems Using the Regeneration Spectrum **DS 191**

Parameter Plane Method
Application of The Parameter Plane Method to The Analysis of Directional Stability of Tractor-Semitrailers **DS 9**

Parameter Systems
Stability Tests for One, Two, and Multidimensional Linear Systems **DS 105**

Parameter Values
Model Verification of Mixed Dynamic Systems (77-DET-85) **MD 266**

Parametric Excitations
Parametererregte Schwingungen (BR) **AM 229**

Parametric Instabilities
Use of Dynamic Absorbers to Control Parametric Instabilities of a Pipe (BN) **AM 949**

Parametric Response
The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity **AM 643**
Parametric Study
A Parametric Study of Fatigue Crack Growth Behavior in Adhesively Bonded Metallic Structures (77-WA/Mat-5) **MT 46**
A Parametric Study of Hot Water Storage for Peak Power Generation **P 229**
A Parametric Study to Relate Speed to Permissible Combinations of Track Geometry Deviations **DS 252**
Parametric Survey
Lower-Bound Limit Pressures for the Cylinder-Cylinder Intersection: A Parametric Survey **PVT 65**
Parihar, K. S. Stress Singularity at the Corner of a Wedge-Shaped Crack or Inclusion (78-WA/APM-6) **AM 791**
Park, K. C. Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 1: Implementation **AM 595**; Part 2: Error Propagation **AM 603**; *(reviewer)* Construction of Integration Formulas for Initial Value Problems (BR) **AM 233**
Parker, R. J. Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-LUB-14) **L 39**; Lubrication of High-Speed, Large Bore Tapered-Roller Bearings (77-Lub-13) **L 31**; Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) **L 226**; (D) **L 232, 233**; (AC) **L 234**
Parks, D. M. On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) **PVT 13**
Parsons, J. R., Jr. Transient Free Convection from a Suddenly Heated Horizontal Wire **HT 423**
Partial Cavitation
A Partially Cavitating Hydrofoil of Finite Span **F 353**
Partial Hydrodynamic Lubrication
An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) **L 12**
Particulate Beds
Natural Convection Heat Transfer in Beds of Inductively Heated Particles **HT 78**
Particulate Solids
On the Analogy Between the Calorimeter Problem and Some Granulate-Fluid Exchange Processes **HT 319**
Particle Deposition
Particle Deposition in a Charged Aerosol Flowing Through a Conducting Tube **F 449**
Passerello, C. E. Dynamics of Multirigid-Body Systems (78-WA/APM-10) **AM 889**
Passenger Compartment Noise Levels
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) **MD 644**
Passenger Railcars
A Parametric Study of Related Speed to Permissible Combinations of Track Geometry Deviations **DS 252**
Passenger Ride Comfort
Optimization of Rail Vehicle Operating Speed with Practical Constraints (78-WA/DSC-28) **DS 260**
The Prediction of Passenger Riding Comfort From Acceleration Data (77-WA/Aut-6) **DS 34**
A State-Constrained Approach to Vehicle-Follower Control for Short Headway Automated Transit Systems **DS 291**
Passenger Trains
Energy Requirements of the Rail Mode (78-RT-1) **I 475**
Passenger Transportation
Fatigue Strength and Maintenance of the Wheel-Axle Assembly for the Japanese Fast Train (Shinkansen) **MT 227**
Passenger Vehicle Improvement
Rail Passenger Vehicle Lateral Dynamic Performance Improvement Through Active Control **DS 270**
Passenger Vehicles
Magnetic Suspension for Low-Speed Vehicles **DS 333**
Pasternak, R. E. The Stress Controlled High Cycle Fatigue Response of a Metastable Beta Titanium Alloy as Influenced by Several Test Variables (TB) **MT 426**
Pasternak-Type Elastic Foundation
Large Deflection of a Rectangular Plate Resting on a Pasternak-Type Elastic Foundation (Er) **AM 459**
Patankar, S. V. Development of Wall and Free Plumes Above a Heated Vertical Plate **HT 184**; Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**; Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube (Er) **HT 367**; Effect of Subcooling on Cylindrical Melting **HT 395**; Forced Convection Heat Transfer from a Shrouded Fin Array with and without Tip Clearance **HT 572**
Patch Contact
The Thermoelastic Patch Contact Problem for Large Peclet Number (77-Lub-32) **L 65**
Patel, P. D. Experiments and Universal Growth Relations for Vapor Bubbles With Microlayers **HT 41**
Patel, V. C. Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (D) **F 45**; (AC) **F 46**
Patil, M. R. Free Convection Effects on Stokes' Problem for a Vertical Plate in Rarefied Gas-Medium (BN) **AM 597**
Patir, N An Average Model Flow for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) **L 12**
Patterson, G. K. *(editor)* Turbulence in Liquids (BR) **AM 232**
Pearce, J. C. Granular Material Flow in Two-Dimensional Hoppers **AM 43**
Peck, J. Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) **PVT 74**
Peclet Number
The Thermoelastic Patch Contact Problem for Large Peclet Number (77-Lub-32) **L 65**
Pedestal Stiffness
Influence of Unequal Pedestal Stiffness on the Instability Regions of a Rotating Asymmetric Shaft **AM 400**
Pendulum Impact
Response of a Realistic Human Head-Neck Model to Impact **BE 25**
Penetration
Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) **I 261**; (D) **I 271**; (AC) **I 272**
Penetration Depths
Depth of Penetration as a Predictor of the Wear Polymers on Hard, Rough Surfaces **L 92**
Two Temperature Gradients Model for Friction Failure (77-Lub-28) **L 479**; (D) **L 484**; (AC) **L 485**
Penetration Forces
Diamond Compact Cutter Studies for Geothermal Bit Design **PVT 406**
Penetrator Axial Particle Velocity
Initial Response of a Rock Penetrator **AM 559**
Peng, Y. L Tool Life Distributions—Part 3: Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-3) **I 193**
Penny-Shaped Crack
Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid With a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**
Perel, D. Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**
Perforated Plates
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) **P 356**
Performance Analysis
Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) **MD 236**
Performance Analysis of a Pancake Absorber-Helical Heat Exchanger for a Solar Concentrator **P 178**
Performance Assessment Factors
Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 1 Implementation **AM 595**
Performance Comparison
Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**
Performance Criteria
The Use of Sensitivity Functions to Match Matrix Transfer Functions to Time-Domain Performance Criteria **DS 187**
Performance Deterioration
Thermal Performance Deterioration in Crossflow Heat Exchanger due to the Flow Nonuniformity **HT 580**
Performance Diagnostic System
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) **P 691**; (D) (AC) **P 697**
Performance Index
Development in Nonlinear Controller Synthesis: An Overview **DS 59**
Performance Measurement
The Optimal Machine Tool Control Problem **DS 170**
Performance Parameter
A Thermodynamic Study of Heating with Geothermal Energy (77-WA/Ener-1) **P 503**
Performance Ranking
Performance Ranking of Plate-Fin Heat Exchanger Surfaces (76-WA/HT-31) **HT 514**
Performance Standards
An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) **PVT 85**
Perfused Media
Effect of Inhomogeneities and Finite Boundaries on Temperature Distributions in a Perfused Medium, With Application to Tumors **BE 235**
Periodic Discontinuities
Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) **F 17**; (D) **F 247**; (AC) **F 248**
Periodic Elastic Media
Elastic Dispersion, Homogeneous Dispersive Media and an Application to Periodic Elastic Media **AM 337**
Periodic Errors
The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Flow in Compressor Cascades (77-WA/FE-5) **F 22**
Periodic Excitations
Bifurcations in Dynamical Systems With Internal Resonance (78-WA/APM-12) **AM 895**
Periodic Flow
Tailoring the Waveform of a Periodic Flow With a Programmable Damper **F 287**
Periodic Inhomogeneities
Low Frequency Bloch Waves for Wave Equations Whose Speed Is a Deterministic, or Randomlike, Periodic Function **AM 331**
Periodic Loads
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**
Periodic Loading
Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 660**
Periodic Proof Testing
A Means of Assessing the Effects of Periodic Proof Testing and NDE on the Reliability of Cyclically Loaded Structures (77-PVP-44) **PVT 150**
Periodic Structures
Simulation of Continuous Systems by Periodic Structures **AM 385**
Peristaltic Pumping
Peristaltic Pumping of a Newtonian Fluid With Particles Suspended in It at Low Reynolds Number Under Long Wavelength Approximations **AM 32**
Permafrost
Loading Mechanisms in Thawed Permafrost Around Arctic Wells (D) **PVT 320**
Pile Foundations in Frozen Soils (77-Pet-79) **PVT 302**
Permeability
Analysis of Dynamic Tilt Stiffness and Damping Coefficients of Externally Pressurized Porous Gas Journal Bearings **L 359**
Measurement of Burn-Induced Leakage of Macromolecules in Living Tissue **BE 153**
Permeable Formations
Convection in a Porous Medium Heated from Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient (77-GT-56) **HT 448**
Permeable Thermal Barrier System
Transient Analysis of a Permeable Thermal Barrier System (77-DE-24) **MD 127**
Permeation Rate
Hydrogen Gas Generation in Water Heat Pipes **MT 313**
Permutation/Combination Method
Graphical Interpretation of the Solution to the Redundant Problem in Biomechanics **BE 159**
Perrone, N. Finite Element and Finite Difference Methods in Engineering (77-DE-45) **MD 188**
Persson, U. Load Distribution in Timing Belts **MD 208**
Perturbation
Dynamic Characteristic of Multirecess Externally Pressurized Oil Journal Bearing **L 467**
Dynamic Plastic Instabilities in Stretching Plates and Shells **AM 105**
Low Frequency Bloch Waves for Wave Equations Whose Speed Is a Deterministic, or Randomlike, Periodic Function **AM 331**
Optimal Shape of Shallow Circular Arches Against Snap-Buckling **AM 591**

Partial Spectral Expansions for Problems in Thermal Convection **HT 435**
A Perturbation Method for Studying Heat Conduction in Solid With Random Conductivity (BN) **AM 933**
Perturbation Solution of the 1-D Reynolds Equation With Slip Boundary Conditions **L 70**
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**
Stress-Intensity Factors for Arbitrarily Oriented Cracks in Shallow Shells **AM 135**
Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique **AM 393**
Surface Ribbing of a Thin Viscous Fluid Film Emerging From a Spreader or Roller **L 462**

Personal Cooling System
A Portable Personal Cooling System for Mine Rescue Operations (77-ENAs-53) **I 53**

Peterka, J. A. Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**

Peters, D. A. A Simple Dynamic Model For Simulating Draft-Gear Behavior In Rail-Car Impacts (78-RT-2) **I 492**

Peters, W. H. Stress Intensity Factors for Reactor Vessel Nozzle Cracks **PVT 141**

Peterson, C. R. The RAPIDEX Conical Reamer (77-Pet-31) **PVT 60**

Petrie, T. W. Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) **P 520**

Petroleum Refinery Piping
The New Edition of ANSI B31.3—Some Significant Changes **PVT 123**

Petrov, N. A Thermodynamic Model of Biological Body: Muscle Mechanics **BE 14**

Petit, R. B. Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/SOL-1) **P 489**

Petyl, M. Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 660**

Pfeiffer, N. J. Fatigue Crack Propagation in 8- and 22-Layer 7075-T6 Aluminum Alloy Laminates (77-WA/Mat-3) **MT 32**

Phase Change
Phase Change in Liquid Face Seals (77-Lub-12) **L 74**; (D) (AC) **L 79**

Phase Lag Analysis
An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/PROD-30) **I 153**

Phase Transformations
On the Symmetry and Stability of Thermoelastic Solids **AM 740**

Phase Velocity
Elastic Interface Waves and Sliding Between Two Solids **AM 325**

Phelippeau, G. The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**

Philipson, R. H. Application of Goal Programming to Machinability Data Optimization (77-DET-19) **MD 286**

Phillips, C. A. Left Ventricular Function: Correlation With Deformation of the Myocardium (77-WA/Bio-11) **BE 99**; (D) (AC) **BE 104**

Photoelastic Analysis
Photoelastic Analysis of a Composite Prism Subjected to Partial Compression (BN) **AM 436**
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) **PVT 134**

Photoelastic Material
Bending Stress in Gear Teeth Having Circular Arc Profiles: Part 1—Analysis **MD 382**; Part 2: Experimental Investigation (77-DET-53) **MD 395**; (D) (AC) **MD 404**

Phung, D. L. Power System Economics: On Selection of Engineering Alternatives (D) **P 345**; (AC) **P 346**

Phukan, A. Pile Foundations in Frozen Soils (77-Pet-79) **PVT 302**

Physical Dynamic Systems
Pseudo Bond Graphs for Thermal Energy Transport **DS 165**

Physico-Computational Model
A Novel Physico-Computational Model for Quasi One-Dimensional Gas-Particle Flows (76-WA/FE-36) **F 343**

Pierce, R. E. Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) **L 81**; (D) (AC) **L 90**

Pile Foundations
Pile Foundations in Frozen Soils (77-Pet-79) **PVT 302**

Pile Hammer
Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) **PVT 194**

Pilkey, W. Transient Response With Viscous Damping (78-WA/APM-5) **AM 877**

Pilkey, W. D. The Riccati Transfer Matrix Method (77-DET-32) **MD 297**; Transient Response of a Rotor in Damped Bearings (77-DET-21) **MD 257**

Pilot Plants
Bursting Pressure as the Basis for Cylinder Design **PVT 374**

Pilot-Scale Drilling Research
Techniques of Pilot-Scale Drilling Research (77-Pet-68) **PVT 188**

Pinion-Gear Systems
Simulation of Resonances and Instability Conditions in Pinion Gear Systems (77-DET-50) **MD 26**

Pinion Impingement Depth
Study of Lubricant Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) **MD 61**; (D) **MD 68**; (AC) **MD 68**

Pinion Stiffness
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) **MD 696**

Pipe Axis
The Dynamics of Thin Liquid Films in Rotating Tubes: Approximate Analysis **F 187**

Pipe Bends
Stress Analysis of Pipe Bends by Ring Elements **PVT 112**

Pipe Conditions
Conditions for a Pipe to Run Full When Discharging Liquid Into a Space Filled With Gas (D) (AC) **F 136**

Pipe Fittings
Predetermination of the Relative Error on the Flow Coefficient of Orifice Meters in Nonstandard Approach Conditions **F 60**

Pipe Flows
Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**
Turbulent Heat Transfer Downstream of an Unsymmetric Blockage in a Tube **HT 588**

Pipe Orifice
A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**

Pipeline Components
Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**

Pipeline Productivity
The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) **P 452**

Pipelines
Effect of an Elevated Pipeline on Moss Covered Ground Temperature **HT 363**
Propagating Buckle Arrestors for Offshore Pipelines **PVT 206**

Pipes
A Bond Graph Modeling Philosophy for Thermofluid Systems **DS 76**
Early Response of Hot Water to Sudden Release from High Pressure **HT 473**
A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**
Free-Forced Convection in the Entry Region of a Heated Straight Pipe **HT 212**
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) **PVT 13**
Hydrogen Gas Generation in Water Heat Pipes **MT 313**
Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**
Pipes Supported at Both Ends Cannot Flutter **AM 619**
Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) **PVT 172**
Second Flow in Rotating Bends **P 553**
Use of Dynamic Absorbers to Control Parametric Instabilities of a Pipe (BN) **AM 949**

Piping Applications
Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) **MT 338**

Piping System Pressures
Control of Steam Venting Noise in Power Plants (77-IPC-PWR-1) **P 369**

Piping Systems
Forced Vibration of Continuous System With Nonlinear Boundary Conditions (77-DET-80) **MD 487**
Low NOx Combustion of Paraho Shale Oil in a 45 MW Utility Boiler (77-WA/Fu-1) **P 393**
Rational and Economical Multicomponent Seismic Design of Piping Systems (TB) **PVT 425**
Stiffness Coefficients and Allowable Loads for Nozzles in Flat-Bottom Storage Tanks (77-PVP-19) **PVT 389**

Piston Compression
Heat Transfer During Piston Compression **HT 527**

Pittinato, G. F. Hydrogen Gas Generation in Water Heat Pipes **MT 313**

Pitting Life Criteria
The Practical Significance of Designing to Gear Pitting Fatigue Life Criteria (77-DET-122) **MD 46**

Pitting Limit Increase
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) **MD 440**

Pivoted Configurations
Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) **L 279**; (D) **L 285**; (AC) **L 286**

Planar Inclusion
Stress Singularity at the Corner of a Wedge-Shaped Crack or Inclusion (78-WA/APM-6) **AM 791**

Planar Media
Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) **HT 665**

Planar Motion
Instantaneous Invariants in Three-Dimensional Kinematics **AM 409**

Plane Biaxial Load
Fracture Under Combined Loads by Maximum-Energy-Release-Rate Criterion **AM 553**

Plane Conditions
The End-Values of Distributed Loads in Half Planes by Caustics **AM 313**

Plane Crack
Three-Dimensional Wave Propagation in a Cracked Elastic Solid **AM 807**

Plane Elasticity
Solution of Navier's Equation in Cylindrical Curvilinear Coordinates **AM 812**

Plane Expansion
Turbulence Characteristics of the Flow Downstream of a Symmetric, Plane Sudden Expansion **F 308**

Plane Harmonic Vibrations
Dynamic Characteristic of Multirecess Externally Pressurized Oil Journal Bearing **L 467**

Plane Jets
Solutions of Laminar Jet Flow Problems for Non-Newtonian Power-Law Fluids **F 363**

Plane Melt Layer
Effect of Subcooling on Cylindrical Melting **HT 395**

Plane Poiseuille Flow
Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**

Plane Progressive Waves
Plane Progressive Waves in a Binary Mixture of Linear Elastic Materials **AM 493**

Plane Shear
Effect of Stress-Free Edges in Plane Shear of a Rectangular Orthotropic Region **AM 307**

Plain Strain
Analysis of Closure in Fatigue Crack Growth **AM 267**
Analytical Prediction of Three Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) **I 222**
Crack Growth Resistance at Low Stress Intensities **MT 134**
A Slip Model for Finite-Element Plasticity **AM 527**
Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid With a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Fault (77-WA/DE-14) **MD 630**

Plane Stress
Angled Elliptic Notch Problem in Compression and Tension **AM 258**
Application of Resistance Curves to Residual Strength Prediction **MT 138**
Measurement of the Elastic-Plastic Boundary Around Cold-worked Fastener Holes (78-WA/APM-2) **AM 515**
Numerical Analysis of Time-Dependent Inelastic Deforma-

tion in Metallic Media Using the Boundary-Integral Equation Method **AM 785**
Waves From Suddenly Punched Hole in Finitely Stretched Elastic Sheet **AM 83**

Plane Surface Waves
A Ray Theory for Elastodynamic Stress-Intensity Factors **AM 123**

Plane Toothed Wheel
Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) **MD 460**

Plane-Wall Diffusers
Transitory Stall Time-Scales for Plane-Wall Air Diffusers (TB) **F 133**

Plane Wall Geometry
Experiments and Universal Growth Relations for Vapor Bubbles With Microlayers **HT 41**

Plant Conversion
Considerations When Converting Industrial Plants to Coal Firing (77-IPC-Fu-1) **P 374**

Plasma Concept
Special Engineering Problems of TFTR (77-WA/NE-4) **P 417**

Plasma Confinement
Fusion Energy (77-WA/NE-1) **P 399**

Plasma Contamination
Helium Blistering in Metals (78-Mat-5) **MT 411**

Plasma Densities
Tokamak Reactors (77-WA/NE-3) **P 412**

Plastic Bending
Stress-Strain Analysis of Cyclic Plastic Bending and Torsion **MT 157**

Plastic Collapse
Plastic Collapse of Oval Straight Tubes Under External Pressure (77-PVP-57) **PVT 46**

Plastic Compressive Wave
Quasi-Bifurcation of Rods Within an Axial Plastic Compressive Wave **AM 100**

Plastic Deformation
Analysis of Closure in Fatigue Crack Growth **AM 267**
Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) **I 159**
On a Diffusion Wear Model for High Speed Steel Tools **L 436**
Effect of Strain Hardening on the Large Plastic Deformation of a Cantilever (BN) **AM 953**
Experiments on Strain Rate History and Temperature Effects During the Plastic Deformation of Close-Packed Metals **AM 66**
Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **MT 421**
Residual Strains Around Coldworked Fastener Holes **MT 310**
Viscoplastic Constitutive Equations for Copper With Strain Rate History and Temperature Effects **MT 388**

Plastic Flow
Analytical Prediction of Three Dimensional Cutting Process—Part 1: Basic Cutting Model and Energy Approach (77-WA/Prod-9) **I 222**
A Comparative Study of Various Empirical Relations Applicable in Hot Strip Rolling (TB) **MT 430**

Plastic Hemispherical Shells
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) **I 249**

Plastic Instabilities
Dynamic Plastic Instabilities in Stretching Plates and Shells **AM 105**
On the Theories of Sheet Metal Necking and Forming Limits **MT 303**

Plastic Materials
On the Dynamic Expansion of a Circular Hole in an Infinite Plate of Rate-Sensitive Plastic Material **AM 67**
The Dynamic Hole Expansion Problem for a Plate of Elastic-Perfectly Plastic Material (BN) **AM 961**
A Slip Model for Finite-Element Plasticity **AM 527**

Plastic Plane Disk Windows
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) **I 273**

Plastic Regions
Measurement of the Elastic-Plastic Boundary Around Coldworked Fastener Holes (78-WA/APM-2) **AM 515**

Plastic Slip-Line Fields
Riemann-Integral Solutions for the Plastic Slip-Line Fields Around Elliptical Holes (BN) **AM 678**

Plastic Spheres
Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) **F 17**

Plastic Strain
Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-APM-3) **AM 507**

Plastic-Strain Criterion
A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**

Plastic Strain Effect
The Effect of Plastic Strain Followed by Aging on the Torsion Fatigue Resistance of Quenched and Tempered 4340 Steel (TB) **MT 219**

Plasticity
An Analysis of High Temperature Metal Creep—Part I: Experimental Definition of an Alloy **MT 363**; Part II: A Constitutive Formulation and Verification **MT 371**
Application of the R-Curve Concept to Fatigue Crack Growth **MT 416**
Applications of the Theory of Plasticity in Soil Mechanics (BR) **AM 705**
Cyclic Plasticity for Nonproportional Paths: Part 1—Cyclic Hardening, Erasure of Memory, and Subsequent Strain Hardening Experiments (77-WA/Mat-12) **MT 96**; Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) **MT 104**
Further Developments in Anisotropic Plasticity **MT 294**
Further Investigation of a New Hardening Law in Crystal Plasticity **AM 500**
On the Uniqueness and Stability of Endochronic Theories of Material Behavior **AM 263**
Viskoelastizität und Plastizität. Thermomechanisch Konsistente Materialgleichungen (Viscoelasticity and Plasticity. Thermomechanically Consistent Constitutive Equations). (BR) **AM 457**

Plastics Molding Machines
Centrifugally Cast Metallurgical Coatings for Wear Resistance in Plastics Molding Machines **L 423**

Plastics
Elastic-Plastic R-Curves (78-Mat-12) **MT 258**
Void Growth and Local Necking in Biaxially Stretched Sheets **MT 164**

Plate Deformation
A High-Order Theory of Plate Deformation—Part 1: Homogeneous Plates (D) (AC) **AM 702**

Plate Fin Regenerators
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) **P 576**

Plate-Fin Surfaces
Performance Ranking of Plate-Fin Heat Exchanger Surfaces (76-WA/HT-31) **HT 514**

Plate Steels
Comparison of Dynamic Tear and Charpy-V-Notch Impact Properties of Plate Steels **MT 204**

Platoon Stability
Longitudinal Control of Automated Guideway Transit Vehicles Within Platoons **DS 302**

Plates
Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) **PVT 344**
Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) **P 380**; (D) (AC) **P 389**
An Approximate Solution for the Fundamental Frequency of Plates (BN) **AM 936**
Axisymmetric Bending of Annular Plates (78-WA/APM-27) **AM 834**
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) **MD 374**
Collocation Solution for Point-Supported Square Plates (BN) **AM 424**
Combined Conduction-Radiation Heat Transfer Through an Irradiated Semi-Transparent Plate (TN) **HT 169**
On the Contact Problem of a Highly Inflated Spherical Nonlinear Membrane (BN) **AM 122**
Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-88) **MD 274**
Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) **P 497**
On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) **MD 703**
Development of Wall and Free Plumes Above a Heated Vertical Plate **HT 184**
On the Dynamic Expansion of a Circular Hole in an Infinite Plate of Rate-Sensitive Plastic Material **AM 67**
The Dynamic Hole Expansion Problem for a Plate of Elastic-Perfectly Plastic Material (BN) **AM 961**
Dynamic Plastic Instabilities in Stretching Plates and Shells **AM 105**
Dynamic Response of Circular Plates Resting on Viscoelastic Half Space **AM 379**
Dynamics of Viscoelastic Plate With Curved Boundaries of Arbitrary Shape **AM 629**
Eigenfunction Solutions for the Flexure of Clamped Rectangular Plates Lying on an Elastic Foundation (BN) **AM 211**
Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) **P 356**
Elastic-Plastic Plate With Arbitrary Poisson's Ratio (BN) **AM 205**
Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) **PVT 77**
Experimental Heat Transfer Behavior of a Turbulent Boundary Layer on a Rough Surface With Blowing **HT 134**
An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition from Laminar Forced Convection to Turbulent Free Convection over a Horizontal Isothermally Heated Plate **HT 429**
Experimental Solution of Flexed Plates by the Method of Caustics (Er) **AM 965**
Experimental Study on the Effect of Orientation of Heating Circular Plate on Film Boiling Heat Transfer for Fluorocarbon Refrigerant R-11 **HT 624**
Experimental and Theoretical Study on Magnetoelastic Buckling of a Ferromagnetic Cantilevered Beam-Plate **AM 355**
Free Convection Effects on Stokes' Problem for a Vertical Plate in Rarefied Gas-Medium (BN) **AM 697**
Free Convection Across Inclined Air Layers with One Surface V-Corrugated **HT 410**
A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**
Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates **AM 521**
Influence of Rotatory Inertia on Steady-State Crack Propagation in a Finite Plate Subjected to Out-of-Plane Bending **AM 130**
Laminar Shear Layer Due to a Thin Flat Plate Oscillating With Zero Mean Velocity (78-WA/FE-16) **F 367**
Large Deflection of a Rectangular Plate Resting on a Pasternak-Type Elastic Foundation (Er) **AM 459**
Leading-Edge Correction for the Supercavitating Flat-Plate Hydrofoil (77-FE-21) **F 276**; (D) (AC) **F 280**
Linearized Stability Analysis of Film Condensation **HT 629**
Natural Convection in Compound Parabolic Concentrators—A Finite-Element Solution **HT 199**
Natural Frequencies of Clamped Orthotropic Rectangular Plates With Varying Thickness (78-WA/APM-9) **AM 871**
Nonlinear Vibrations of Orthotropic Plates Carrying Concentrated Mass (TB) **I 293**
Nonsimilar Laminar Free Convection Flow Along a Nonisothermal Vertical Plate (TN) **HT 163**
A Note on Nodal Lines of Rectangular Plates (BN) **AM 691**
A Note on the Reaction at Simply Supported Square Corners (BN) **AM 217**
Observations on Numerical Modeling of an Obtuse Corner of a Simply Supported Plate (BN) **AM 689**
Quarter Elliptical Cracks Emanating From Holes in Plates **MT 144**
Reduction of Stress Concentration Due to Interference Fits in an Infinite Plate With Two Holes **PVT 369**
Response of Collecting Plates in Electrostatic Precipitators Due to Shear Rapping (77-DET-98) **MD 105**
Response of a Rigid-Plastic Circular Plate in Contact With Newtonian Fluid (BN) **AM 199**
Some Effects of Mechanically-Produced Unsteady Boundary Layer Flows on Convective Heat Transfer Augmentation **HT 25**
The Squeezing of a Fluid Between Two Plates (Er) **AM 706**
Stability of a Nonlinear Rectangular Plate **AM 583**
Stability of Polar-Orthotropic Sector Plates (BN) **AM 448**
Stability of a Rectangular Simply Supported Plate Subjected to Nonincreasing Tangential Follower Forces (BN) **AM 223**
Strain Energy Minimization Leading to Timoshenko's Clamped Rectangular Plate Solution (BN) **AM 948**
Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**
Thermal Buckling of an Annular Plate With Axisymmetric Initial Deflection (BN) **AM 693**

Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) **MD 528**

Turbulence Measurements in a Separated and Reattached Flow Over a Blunt Flat Plate **F 224**

Vibration Analysis of Circular Plates With Eccentric Hole (BN) **AM 215**

Wide-Band Random Vibration of Circular Plates (77-DET-97) **MD 690**

Pletcher, R. H. The Numerical Prediction of the Turbulent Flow and Heat Transfer in the Entrance Region of a Parallel Plate Duct (D) **HT 561**; (AC) **HT 562**; Prediction of Incompressible Turbulent Separating Flow (78-WA/FE-4) **F 427**

Plotkin, A. Leading-Edge Correction for the Supercavitating Flat-Plate Hydrofoil (77-FE-21) **F 276**; (D) (AC) **F 280**; Unsteady Transonic Thin-Airfoil Theory for Power-Law Upwash (BN) **AM 440**

Plume Dispersion

Experimental Study of a Solid-Gas Jet Issuing Into a Transverse Stream (78-WA/FE-2) **F 333**; (D) **F 338**; (AC) **F 339**

Plume Development

Development of Wall and Free Plumes Above a Heated Vertical Plate **HT 184**

Plume Properties

Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along a Vertical Isothermal Wall **HT 177**

Plumes

Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**

Plunge Cutting Operation

Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) **I 332**; (D) (AC) **I 339**

Plunkett, R. Nonlinear Material Damping for Nonsinusoidal Strain **AM 883**

Pneumatic Hammer

A Study of the Stability of an Externally-Pressurized Gas-Lubricated Thrust Bearing With a Flexible Damped Support **L 364**

Pneumatic Impact Absorbers

Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) **MD 236**

Pneumatic Tired Vehicle

Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part I—A Mathematical Model **DS 311**; Part II—Simulated Versus Experimental Data **DS 319**

Pneumatic Vibration Isolation System

Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) **MD 500**

Pnueli, D. Two Temperature Gradients Model for Friction Failure (77-Lub-28) **L 479**; (D) **L 484**; (AC) **L 485**

Pohanerkar, S. G. Free Convection Effects on Stokes' Problem for a Vertical Plate in Rarefied Gas-Medium (BN) **AM 697**

Point Contacts

Isothermal Elastohydrodynamic Lubrication of Point Contacts Part IV-Starvation Results (D) (AC) **L 142**

Point Mapping Stability

Point Mapping Stability (BR) **AM 456**

Poiseuille Flow

Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**

Poisson's Ratio

Elastic-Plastic Plate With Arbitrary Poisson's Ratio (BN) **AM 205**

Polak, A. Interacting Turbulent Boundary Layer Over a Wavy Wall **HT 678**

Polar-Orthotropic Sector Plates

Stability of Polar-Orthotropic Sector Plates (BN) **AM 448**

Pollard, H. F. *(author)* Sound Waves in Solids (BR) **AM 967**

Pollman, E. Flow Excited Vibrations in High-Pressure Turbines (Steam Whirl) **P 219**

Pollutant Emissions

The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) **P 630**

The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) **P 640**

Pollution Problems

Development of a Hybrid Catalytic Combustor **P 267**

Polyester/Cotton Yarns

The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) **I 13**

Polyester Fabrics

Combining of Opening Room Blends of Cotton and Polyester (77-Tex-5) **I 21**

Polyethylene

The Wear of High Molecular Weight Polyethlene—Part I: The Wear of Isotropic Polyethylene Against Dry Stainless Steel in Unidirectional Motion **L 208**

Polyethylene Net Tubing

Opening and Gripping Mechanism for Automatic Produce-Bagging Machine That Uses Factory-Roll Polyethylene Net Tubing (GR) **MD 204**

Polymer Additives

Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**

Polymers

Deformation of Polymers During Hydrostatic Extrusion **PVT 400**

Depth of Penetration as a Predictor of the Wear Polymers on Hard, Rough Surfaces **L 92**

Mechanik der Polymer Werkstoffe (BR) **AM 456**

Methods of Decreasing Wear in Metal-Polymer Contacts **L 185**

Polynomials

On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) **MD 703**

Some Sufficient and Some Necessary Conditions for the Stability of Multivariable Systems **DS 214**

Pontoon Construction

Stresses in Ruptured Floating Roofs **PVT 291**

Pool Boiling

On the Mikic-Rohsenow Pool Boiling Correlation (TN) **HT 733**

Pool Boiling Heat Transfer to Emulsions **HT 613**

Poole, H. W. A New Hooked Needle Device for Forming Fiber Beards for Length and Strength Measurement (77-Tex-2) **I 5**

Poolsuk, S. Measurement of the Elastic-Plastic Boundary Around Coldworked Fastener Holes (78-WA/APM-2) **AM 515**

Poon, D. T. Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**

Porsh, M. A Turbulent Energy Dissipation Model for Flows With Drag Reduction **F 107**

Porous Cylinder

Lift on a Rotating Porous Cylinder (D) **F 136**; (AC) **F 137**

Porous Gas Journal Bearings

Analysis of Dynamic Tilt Stiffness and Damping Coefficients of Externally Pressurized Porous Gas Journal Bearings **L 359**

On the Analytical Solution of Externally Pressurized Porous Gas Journal Bearings (TB) **L 442**

Porous Journal Bearings

On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) **L 296**; (D) **L 302**; (AC) **L 303**

Porous Media

Consolidation in Compressible Mixtures **AM 727**

Convection in a Porous Medium Heated from Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient (77-HT-56) **HT 448**

Natural Convection in a Horizontal Porous Medium Subjected to an End-to-End Temperature Difference **HT 191**

Porous Sheets

Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAs-54) **I 383**

Porous Slider

The Elliptic Porous Slider at Low Crossflow Reynolds Numbers (TB) **L 444**

Fluid Dynamics of the Circular Porous Slider (Er) **AM 236**

Fluid Dynamics of the Elliptic Porous Slider (BN) **AM 435**

Fluid Dynamics of the Long Porous Slider (Er) **AM 236**

Porowski, J. S. Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) **P 356**

Portable Life Support Systems

Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAs-54) **I 383**

Portable Optical Measurement Equipment

Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/Sol-1) **P 489**

Portable Personal Cooling System

A Portable Personal Cooling System for Mine Rescue Operations (77-ENAs-53) **I 53**

Porter, R. W. Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) **F 65**

Portner, P. M. *(author)* A Development Program to Determine the Feasibility of Using a Compact, Efficient Solenoid as an Actuator for Driving a Blood Pump (GR) **MD 206**

Positive Mass Flow

Measurements of the Performance of an Turbine Stage at Positive and Negative Mass Flow and Rotational Speed (Four-Quadrant Characteristics) (77-GT-14) **P 22**

Post, R. L Fatigue Design Criterion for Pressure Vessel Alloys (D) **PVT 236**

Postburn Cooling

Therapeutic Effects of Postburn Cooling **BE 149**

Potential Flow

On the Exact Solution for the Two-Sphere Problem in Axisymmetrical Potential Flow **AM 463**

Potential Theory

Integral Equation Methods in Potential Theory and Elastostatics (BR) **AM 966**

Power Collection System

Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) **MD 242**

Power Computation

A Comparative Study of Various Empirical Relations Applicable in Hot Strip Rolling (TB) **MT 430**

Power Cycles

A Novel Absorption Regeneration-Thermodynamic Heat Engine Cycle **P 566**

The Use of Liquid Natural Gas as Heat Sink for Power Cycles (77-GT-19) **P 169**

Power Gear Transmissions

Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) **MD 69**

Power Generation

A Parametric Study of Hot Water Storage for Peak Power Generation **P 229**

Power Law Fluids

Solutions of Laminar Jet Flow Problems for Non-Newtonian Power-Law Fluids **F 363**; (D) (AC) **F 500**

Power-Law Upwash

Unsteady Transonic Thin-Airfoil Theory for Power-Law Upwash (BN) **AM 440**

Power Law Viscoelastic Layer

The Sliding of a Rigid Indentor Over a Power Law Viscoelastic Layer **AM 111**

Power Plant Condenser

Load-Deformation Behavior of Elastic Beam-Columns of Yielding Foundations **P 182**

Power Plant Cooling Towers

An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**

Power Plants

On The Application Of Modern Control to Power Plants (D) (AC) **DS 94**

Considerations When Converting Industrial Plants to Coal Firing (77-IPC-Fu-1) **P 374**

Control of Steam Venting Noise in Power Plants (77-IPC-Pwr-1) **P 369**

DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**

Forced Vibration of Continuous System With Nonlinear Boundary Conditions (77-DET-80) **MD 487**

A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) **P 511**

High Temperature Properties and Constitutive Equations for 1 Cr-½ Mo Steel (77-PVP-50) **PVT 246**

Performance and Economics of Advanced Energy Conversion Systems for Coal and Coal-Derived Fuels **P 252**

Tokamak Reactors (77-WA/NE-3) **P 412**

Power Reactors

Structural and Mechanical Design of Tokamaks (77-WA/NE-2) **P 404**

Power Spectral Density (PSD)

Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part II—Simulated Versus Experimental Data **DS 319**

Power Spectral Density for Constrained Long Wavelength Guideway Irregularities (77-WA/Aut-13) **DS 18**

Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) **MD 681**

Power Suppliers

Power Suppliers Need Nuclear (IPT) **PVT 326**

Power System Economics

Power System Economics: On Selection of Engineering Alternatives (77-JPGC-Pwr-7) **P 333**; (D) **P 343**;

(AC) **P 346**

Power Turbines

Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**

Powered Exoskeleton

Exoskeleton Prototype Project (GR) **MD 206**

Prabhakara, M. K. A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**

Prachuktam, S. Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**

Prakash, B. G. Eigenfunction Solutions for the Flexure of Clamped Rectangular Plates Lying on an Elastic Foundation (BN) **AM 211**

Prandtl Numbers

Laminar Boundary Layer Transfer over Rotating Bodies in Forced Flow **HT 496**

A Surface Rejuvenation Model for Turbulent Heat Transfer in Annular Flow With High Prandtl Numbers **HT 92**

Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**

Prathap, G. The Large Amplitude Vibration of a Hinged Beam (BN) **AM 959**

Precipitators

Response of Collecting Plates in Electrostatic Precipitators Due to Shear Rapping (77-DET-98) **MD 105**

Precision Gears

Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) **MD 723**

Precracked Charpy Specimens

The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**

General Yielding of Charpy V-Notch and Precracked Charpy Specimens **MT 183**

Pressure

Air Model Tests of Labyrinth Seal Forces on a Whirling Rotor **P 533**

Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) **P 380**; (D) (AC) **P 389**

Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) **F 265**; (D) **F 274**; (AC) **F 275**

Analytical Solutions of Viscous Flow in Constricted or Widened Tubes **AM 241**

Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) **P 618**

Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**

The Behavior of Gas Bubbles in the Casson Fluid **AM 37**

Boundary Layer Calculation for Analysis and Design **F 232**

Buckling of Short Cylinders Under Combined Loading **AM 574**

Bursting Pressure as the Basis for Cylinder Design **PVT 374**

CAVIJET™ Augmented Deep-Hole Drilling Bits (77-Pet-54) **PVT 52**

Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**

Conditions for a Pipe to Run Full When Discharging Liquid Into a Space Filled With Gas (D) (AC) **F 136**

Deformation of Polymers During Hydrostatic Extrusion **PVT 400**

On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D) (AC) **P 591**

The Dynamics of Thin Liquid Films in Rotating Tubes: Approximate Analysis **F 187**

Early Response of Hot Water to Sudden Release From High Pressure **HT 473**

The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) **P 640**

Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) **P 356**

Embedded Elliptical Crack at a Corner (78-PVP-5) **PVT 28**

Experiments on the Dynamic Behavior of Cavitating Pumps **F 168**

Gas Flow Through Cracks **F 453**

On the Growth of Steam Droplets Formed in a Laval Nozzle Using Both Static Pressure and Light Scattering Measurements **F 311**

Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**

Influence of System Pressure on Microlayer Evaporation Heat Transfer **HT 49**

An Investigation of the Influence of Back Pressure on the Diffusion of Mass and Momentum of Fuel in Diesel Spray **P 241**

Leading-Edge Correction for the Supercavitating Flat-Plate Hydrofoil (77-FE-21) **F 276**; (D) (AC) **F 280**

Limit Analysis of Hollow Disk Forging: Part 1: Upper Bound (77-WA/Prod-2) **I 340**; (D) (AC) **I 345**; Part 2: Lower Bound (77-WA/Prod-3) **I 347**; (D) (AC) **I 345**

Liquid-Solid Impact Calculations With Triangular Elements (D) **F 255**; (AC) **F 256**

Lower-Bound Limit Pressures for the Cylinder-Cylinder Intersection: A Parametric Survey **PVT 65**

Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Fluids Ends (77-Pet-42) **PVT 39**

Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) **I 210**

Mechanical Behavior of Nonlinear Visco-Elastic Celluloid Under Superimposed Hydrostatic Pressure **PVT 271**

Moisture Measurements in a Low Pressure Steam Turbine Using a Laser Light Scattering Probe **P 544**

Nonaxisymmetric Flow Through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**

Optimal Shape of Shallow Circular Arches Against Snap-Buckling **AM 591**

Plastic Collapse of Oval Straight Tubes Under External Pressure (77-PVP-57) **PVT 46**

Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **MT 421**

The Preparation of Calcium Superoxide at Subambient Temperatures and Pressures (77-ENAs-55) **I 26**

Review—Self-Sustaining Oscillations of Flow Past Cavities **F 152**

On the Roughness Effect in Hydrodynamic Lubrication **L 176**; (D) (AC) **L 180**

Second Flow in Rotating Bends **P 553**

Steady Flow in Tubes of Slowly Varying Cross Section **AM 475**

Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**

Pressure Angle

Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 1 Analysis (77-DET-52) **MD 382**; Part 2: Experimental Investigation (77-DET-53) **MD 395**; (D) (AC) **MD 404**

Pressure Conditions

Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) **L 404**; (D) **L 416**; (AC) **L 417**

Pressure Contours

Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) **L 236**; (D) (AC) **L 245**

Pressure Differential

Loss Characteristics of Orifices and Nozzles **F 299**

Pressure Distortion

Flow Field Coupling Between Compression System Components in Asymmetric Flow (77-GT-17) **P 66**

Vibratory Forcing Functions Produced by Nonuniform Cascades (77-GT-57) **P 82**

Pressure Distribution

An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) **L 287**; (D) **L 294**; (AC) **L 295**

Analytic Derivation of Static Pressure Distribution in Fully Developed Helical Flows **F 291**

On the Analytical Solution of Externally Pressurized Porous Gas Journal Bearings (TB) **L 442**

Approximate Numerical Solutions for Two-Dimensional Potential Flow Problems (TB) **F 122**

Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) **L 279**; (D) **L 285**; (AC) **L 286**

Experimentally Determined Stability Parameters of a Subsonic Cascade Oscillating Near Stall (77-GT-47) **P 111**

Fluid Dynamic Excitation of Centrifugal Compressor Rotor Vibrations (77-FE-22) **F 73**

The Generation of Continuous Gradient Functions (TB) **DS 152**

On the Influence of Finite Wall Conductance and Inertia Effects of Hydrostatic Thrust Bearing **L 271**

Interaction of the Rotor Blade Shock Waves in Supersonic Compressors With Upstream Stator Vanes (77-GT-93) **P 140**

Investigation of Squeeze Film Damper Forces Produced by Circular Centered Orbits (77-GT-30) **P 15**

A Method for Testing Cascades with Converging Sidewalls **P 457**

A Novel Physico-Computational Model for Quasi One-Dimensional Gas-Particle Flows (76-WA/FE-36) **F 343**

Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) **I 186**

Perturbation Solution of the 1-D Reynolds Equation With Slip Boundary Conditions **L 70**

A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages **F 180**

Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) **P 664**; (D) (AC) **P 675**

Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**

On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**

Squeeze Film Flow Between Arbitrary Two-Dimensional Surfaces Subject to Normal Oscillations **L 316**

Pressure Drops

The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**

Flow and Heat Transfer in Convectively Cooled Underground Electric Cable Systems: Part 1—Velocity Distributions and Pressure Drop Correlations (76-WA/HT-45) **HT 30**

Pressure Fields

Bubble Growth in Variable Pressure Fields **HT 453**

Experimental Study on Bubble Nucleation in the Oscillating Pressure Field (77-HT-22) **HT 460**

Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**

On Vortex Wind Power (77-WA/FE-20) **F 79**

Pressure Fluctuations

Squeeze Film Flow in Arbitrarily Shaped Journal Bearings Subject to Oscillations **L 323**

Pressure Force

Film Cooling of a Gas Turbine Blade **P 476**

Pressure Gradients

Approximate Solution for Pulsatile Laminar Flow in a Circular Rigid Tube (TB) **F 131**

An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P 676**; (D) **P 688-689**; (AC) **P 689**

Measurements of Skewed Boundary Layers in a Curved Duct With Variation in Streamwise Pressure Gradient (TB) **F 124**

Peristaltic Pumping of a Newtonian Fluid With Particles Suspended in it at Low Reynolds Number Under Long Wavelength Approximations **AM 32**

Stress-Induced Radial Pressure Gradients in Liquid-Filled Multiple Concentric Cylinders (D) **AM 228**

Variable Viscosity Effect on the Laminar Water Boundary Layer on Heated Cones **AM 481**

Pressure Head Build-Up

Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) **L 47**

Pressure Hulls

Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) **I 261**; (D) **I 271**; (AC) **I 272**

Pressure Loading

Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**

Postbuckling Ring Analysis (BN) **AM 208**

Pressure Loads

Normal Mode Solution of Fluid-Coulped Concentric Cylindrical Vessels (77-PVP-37) **PVT 350**

Pressure Losses

Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) **PVT 172**

Pressure Measurement

Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) **MD 433**

Pressure Probe

A Yaw-Insensitive Static Pressure Probe **F 229**

Pressure Profiles

Calculations of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (76-WA/FE-31) **F 355**

Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular

Whirl Orbits (77-DET-25) **MD 549**
Flow in Finite-Width, Thrust Bearings Including Inertial Effects I—Laminar Flow **L 330**
Interferometric Deformation Measurement of Elastohydrodynamically Loaded Surfaces (TB) **L 508**

Pressure Rate
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) **L 418**

Pressure Ratios
Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy **P 525**
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) **P 439**

Pressure Recovery
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**
The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) **P 444**

Pressure Reduction
Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through and Orifice **F 493**

Pressure Suppression Systems
Experimental Tests of the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 605**
On the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 601**

Pressure Transducers
A Novel Pressure Transducer Using Mechanical Resonance **DS 83**
Response of a Realistic Human Head-Neck Model to Impact **BE 25**

Pressure Valves
Initial Response of a Rock Penetrator **AM 559**

Pressure Vessel Alloys
Fatigue Design Criterion for Pressure Vessel Alloys (D) **PVT 236**

Pressure Vessel and Piping Codes
Acoustic Emission Examination **PVT 127**
The Background of ASME Code Case 1828: A Simplified Method of Analyzing Part B Flanges **PVT 215**
Design Curves for Stress Analysis of U-Tube Heat Exchanger Tubesheet With Integral Channel and Head **PVT 221**
The New Edition of ANSI B31.3—Some Significant Changes **PVT 123**
The Past, Present and Future of Section X of the ASME Boiler and Pressure Vessel Code **PVT 219**
Rules for Inservice Inspection for Nuclear Power Plant Components **PVT 313**
Status ASME XI Appendix A—Evaluation of Flaw Indications **PVT 417**

Pressure Vessel Research Committee
Funding Sought for PVRC Gasket Test Program II **PVT 423**
Improving Nuclear Piping Systems Discussed at Meeting of PVRC's Subcommittee of Piping, Pumps, and Valves **PVT 319**
Interpretive Reports Produced by Recently Formed Japan Pressure Vessel Research Committee **PVT 319**
Pressure Vessel Research Notes **PVT 423**
Three Members Honored **PVT 319**
WRC Bulletin 230—September 1977 **PVT 131**
WRC Bulletin 231—October 1977 **PVT 131**
WRC Bulletin 233—December 1977 **PVT 131**
WRC Bulletin 235—February 1978 **PVT 319**
WRC Bulletin No. 236 - April 1978 **PVT 319**
WRC Bulletin No. 238—June 1978 **PVT 424**
WRC Bulletin 240—Aug. 1978 **PVT 424**
WRC Bulletin 241—Sept. 1978 **PVT 424**

Pressure Vessels
Application of Resistance Curves to Residual Strength Prediction **MT 138**
A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) **MT 272**
Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) **MT 338**
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) **I 249**
A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**
Pressure Tubes: The Pressure Vessels in the CANDU Nuclear Power Reactor (IPT) **PVT 328**
Stress Intensity Factors for Reactor Vessel Nozzle Cracks **PVT 141**
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) **PVT 134**

Pressurized Bearings
Analysis of Dynamic Tilt Stiffness and Damping Coefficients of Externally Pressurized Porus Gas Journal Bearings **L 359**
On the Analytical Solution of Externally Pressurized Porous Gas Journal Bearings (TB) **L 442**
A Study of the Stability of an Externally-Pressurized Gas-Lubricated Thrust Bearing With a Flexible Damped Support **L 364**

Pressurized Cylindrical Shell
Pressurized Cylindrical Shell With a Rigid Circular Inclusion **PVT 158**

Pressurized Ellipsoidal Shells
Elastic and Elastic-Plastic Buckling of Internally Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) **PVT 335**

Pressurized Fluid
A Brief History of Electrohydraulic Servomechanisms **DS 110**

Pressurized Gas Bearings
On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) **L 296**; (D) **L 302**; (AC) **L 303**

Pressurized Gas Pipelines
Shear Fracture Propagation by DCB Testing (77-Pet-33) **PVT 18**

Pressurized Line Pipe
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) **PVT 13**

Pressurized Oil Journal Bearing
Dynamic Characteristic of Multirecess Externally Pressurized Oil Journal Bearing **L 467**

Pressurized Shell
Stress-Intensity Factors for Arbitrarily Oriented Cracks in Shallow Shells **AM 135**

Preston Tubes
The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (D) **F 10**; **F 15**; (AC) **F 16**

Priebe, L. A. Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation **BE 49**

Primed Pipes
Conditions for a Pipe to Run Full When Discharging Liquid Into a Space Filled With Gas (D) (AC) **F 136**

Prince, T. C. A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (D) **F 250**; (AC) **F 252**

Printers
Review of Wear Problems in the Computer Industry (77-Lub-4) **L 189**; (D) **L 195-197**; (AC) **L 198**

Probability Density Function
Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) **MD 732**
Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique **AM 393**

Probability-Density Nature
Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**

Probability Distribution Function
Axial Impact Buckling of a Column With Random Initial Imperfections **AM 361**

Probe Response
Moisture Measurements in a Low Pressure Steam Turbine Using a Laser Light Scattering Probe **P 544**

Process Calculations
Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation **BE 49**

Process Control
Use of Secondary Input for Process Control—An Application to a Digester Pulping Process **DS 88**

Process Planning
A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/PROD-19) **I 303**; (D) **I 309**; (AC) **I 310**

Process Steam Industries
A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) **P 511**

Product Mix Analysis
Machine Loading and Product-Mix Analysis for Group Technology (77-WA/PROD-21) **I 370**

Production Capacity
A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) **P 511**

Production Efficiency
Machine Loading and Product-Mix Analysis for Group Technology (77-WA/PROD-21) **I 370**

Production Machining
Application of Goal Programming to Machinability Data Optimization (77-DET-19) **MD 286**
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/PROD-4) **I 356**

Productive Manufacturing
On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/PROD-14) **I 127**

Profile Curvature
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 1 Analysis (77-DET-52) **MD 382**; Part 2: Experimental Investigation (77-DET-53) **MD 395**; (D) (AC) **MD 404**

Profile Modification
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) **MD 715**

Profile Shapes
Turbulence Characteristics of the Flow Downstream of a Symmetric, Plane Sudden Expansion **F 308**

Profile Spectrum
Asperity Interactions in EHD Contacts (77-Lub-19) **L 246**; (D) **L 252**; (AC) **L 253**

Programmable Damper
Tailoring the Waveform of a Periodic Flow With a Programmable Damper **F 287**

Programming Techniques
Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/PROD-4) **I 356**

Progressive Strain Growth
Stress-Strain Analysis of Cycle Plastic Bending and Torsion **MT 157**

Progressive Waves
Plane Progressive Waves in a Binary Mixture of Linear Elastic Materials **AM 493**

Progressive Wear
Flank Wear Model of Cutting Tools Using Control Theory (77-WA/PROD-20) **I 103**

Propagating Buckle
Propagating Buckle Arrestors for Offshore Pipelines **PVT 206**

Propagating Disturbance
Response of a Multidegree-of-Freedom System to Nonstationary Random Excitation **AM 649**

Propagating Waves
Elastic Dispersion, Homogeneous Dispersive Media and an Application to Periodic Elastic Media **AM 337**
Harmonic Wave Propagation in a Periodically Layered, Infinite Elastic Body: Antiplane Strain **AM 343**

Propagation Fronts
Propagation Fronts Arising From the Impulsive Excitation of Orthogonally Woven Cloth and Nets (BN) **AM 957**

Propagation Process
Simulation of the Influence of Bonding Materials on the Dynamic Behavior of Laminated Composites (78-WA/APM-15) **AM 822**

Propeller Current Meters
A Design Method on Propeller Current Meters (75-WA/FM-5) **F 83**

Propeller Wakes
An Experimental Study of Three-Dimensional Characteristics of Propeller Wakes Under Stalling Conditions (D) **F 141**; (AC) **F 142**

Proportional Weirs
Datum Line Fixation for Linear Proportional Weirs (BN) **AM 441**

Proportioned Mechanisms
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) **MD 762**

Prototype Development
Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAs-54) **I 383**

Provis, D. G. *(editor)* Waves on Water of Variable Depth, Vol. 64 (BR) **AM 705**

Pseudo Bond Graphs
Pseudo Bond Graphs for Thermal Energy Transport **DS 165**

Pseudoplastic Fluids
Variable Physical Properties in Laminar Heating of Pseudoplastic Fluids with Constant Wall Heat Flux **HT 220**

Publication Policy
Prior Publication Policy (Ed) **F 2**

Publication Trends
Some Thoughts on Journal Publication Trends (Op) **F 146**
Pue, A. J. A State-Constrained Approach to Vehicle-Follower Control for Short Headway Automated Transit Systems **DS 291**
Pujara, P. On the Contact Problem of a Highly Inflated Spherical Nonlinear Membrane (BN) **AM 202**
Pulmano, V. A. *(editor)* Finite Element Methods in Engineering (BR) **MD 591**
Pulmonary Input Impedance Measurement
Canine Pulmonary Input Impedance Measured by Transient Forced Oscillations **BE 67**
Pulping Process
Use of Secondary Input for Process Control—An Application to a Digester Pulping Process **DS 88**
Pulsatile Laminar Flow
Approximate Solution for Pulsatile Laminar Flow in a Circular Rigid Tube (TB) **F 131**
Pulse Propagation
The Influence of the Retardation Time of the Heat Flux on Pulse Propagation (BN) **AM 433**
Propagation of a Pulse in a Nonhomogeneous Elastic Rod With Varying Cross Section (BN) **AM 942**
Pulsed Loading
Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/PROD-28) **I 147**
Pulses
A Reexamination of Miklowitz-Kolsky Model (BN) **AM 218**
Pump Impellers
Quasi Two-Dimensional Analysis of a Flow Through a Centrifugal Pump Impeller (D) (AC) **F 248**
Pump Surge Behavior
First-Order Pump Surge Behavior (77-WA/FE-12) **F 459**
Pumps
Design and Evaluation of Advanced High Speed Fuel Pump (GR) **MD 205**
Experiments on the Dynamic Behavior of Cavitating Pumps **F 166**
Influence of Volute Surface Roughness on the Performance of a Centrifugal Pump **F 473**
Investigation of a 30,000-RPM Turbine-Speed Hydraulic Pump (GR) **MD 206**
Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Fluid Ends (77-Pet-42) **PVT 39**
A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) **F 395**
A Thermodynamic Study of Heating with Geothermal Energy (77-WA/Ener-1) **P 503**
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) **MD 637**
Punch Stretching
Analysis of Sheet Metal Stamping by a Finite-Element Method **AM 73**
Punched Holes
Waves From Suddenly Punched Hole in Finitely Stretched Elastic Sheet **AM 83**
Pure Integrator System
Quasi-Time-Optimal Feedback Control of Some Fifth-Order Systems **DS 201**

Q

Quadratic Nonlinearities
Bifurcations in Dynamics Systems With Internal Resonance (78-WA/APM-12) **AM 895**
Quadrature Representation
A Quadrature Representation of the Viscoelastic Analogy in the Frequency Domain (BN) **AM 955**
Quarter Elliptical Cracks
Quarter Elliptical Cracks Emanating From Holes in Plates **MT 144**
Quasi-Bifurcation
Quasi-Bifurcation of Rods Within an Axial Plastic Compressive Wave **AM 100**
Quasi-One-Dimensional Diffusion
A Mixture Theory for Quasi-One-Dimensional Diffusion in Fiber-Reinforced Composites **HT 128**
Quasi One-Dimensional Gas Flow
A Novel Physico-Computational Model for Quasi One-Dimensional Gas-Particle Flows (76-WA/FE-36) **F 343**
Quasi-Static Conditions
Dynamic Plastic Instabilities in Stretching Plates and Shells **AM 105**
Quasi-Time-Optimal Feedback Control
Quasi-Time-Optimal Feedback Control of Some Fifth-Order Systems **DS 201**
Quasi Two-Dimensional Analysis
Quasi Two-Dimensional Analysis of a Flow Through a Centrifugal Pump Impeller (D) (AC) **F 248**
Quenched Steel
The Effect of Plastic Strain Followed by Aging on the Torsion Fatigue Resistance of Quenched and Tempered 4340 Steel (TB) **MT 219**
J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) **MT 248**
Queuing
Analysis of the Flow-Type Manufacturing Systems Using the Cyclic Queuing Theory (77-WA/PROD-32) **I 468**
Quiñones, D. F. A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**

R

R-Curve Concept
Application of the R-Curve Concept to Fatigue Crack Growth **MT 416**
Rabinowicz, E. Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear (D) (AC) **L 499**
Radial Face Seals
Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) **L 379**; (D) (AC) **L 384**
Radial Flows
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P 678**; (D) **P 688-689**; (AC) **P 689**
Radial Force
The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow **F 210**; (D) **F 377-380**; (AC) **F 380**
Radial Heat Transfer
Radial Heat Transfer and Critical Biot Number With Radiation, Uniform Surface Heat Generation, and Curvature Effects in Convection (TN) **HT 374**
Radial Inertia
Particle Deposition in a Charged Aerosol Flowing Through a Conducting Tube **F 449**
Radial Inflow Turbine
A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) **F 31**; (D) **F 250**; (AC) **F 252**
Radial Modes
Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**
Radial Nozzle
Lower-Bound Limit Pressures for the Cylinder-Cylinder Intersection: A Parametric Survey **PVT 65**
Radial Pressure Gradients
Stress-Induced Radial Pressure Gradients in Liquid-Filled Multiple Concentric Cylinders (D) **AM 228**
Radial Springs
An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) **MD 216**
Radial Static Pressure
Analytic Derivation of Static Pressure Distribution in Fully Developed Helical Flows **F 201**
Radial Stiffness
Air Model Tests of Labyrinth Seal Forces on a Whirling Rotor **P 533**
Radial Stresses
Determination of Transient Responses of a Thick-Walled Spherical Shell by the Ray Theory **AM 114**
Radial Temperature
An Experimental and Theoretical Study of Heat Transfer in Vertical Tube Flows **HT 86**
Radial Turbines
High-Temperature Potential of Uncooled Radial Turbines (77-GT-46) **P 294**
Radial Variations
A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) **P 698**
Radial Velocities
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) **P 618**
Radial Velocity Fluctuations
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**
Radial Wall Jets
Solutions of Laminar Jet Flow Problems for Non-Newtonian Power-Law Fluids **F 363**
Radiant Energy
A Model for Flame Propagation in Low Volatile Coal Dust-Air Mixtures (77-HT-18) **HT 105**
Radiation
Accurate Spectral Modeling for Infrared Radiation (77-HT-69) **HT 240**
Conservative Anisotropic Scattering in a Planar Medium with Collimated Radiation (78-HT-17) **HT 665**
Infrared Mean Absorption Coefficients of Luminous Flames and Smoke **HT 235**
Radiation From a Methanol Furnace (77-HT-14) **HT 247**
Stresses in a Solidifying Semitransparent Cylindrical Medium by Conduction and Radiation (BN) **AM 946**
Tokamak Reactors (77-WA/NE-3) **P 412**
Two-Dimensional Multiple Scattering Comparison of Theory with Experiment (77-HT-48) **HT 480**
Radiation Augmented Fires
Radiation Augmented Fires Within Enclosures (TN) **HT 544**
Radiation Configuration Factors
A New Look at Radiation Configuration Factors Between Disks (TN) **HT 742**
Radiation Distribution
Performance Analysis of a Pancake Absorber-Helical Heat Exchanger for a Solar Concentrator **P 178**
Radiation Heat Transfer
Combined Conduction-Radiation Heat Transfer Through an Irradiated Semi-transparent Plate (TN) **HT 169**
Radiation Shape Factors
Approximate Radiation Shape Factors Between Two Spheres (TN) **HT 547**
Radiative Heat Transfer
Combined Conductive and Radiative Heat Transfer in an Absorbing and Scattering Infinite Slab (77-HT-50) **HT 96**
Radiative Transfer
Multi-Dimensional Radiative Transfer in Nongray Gases—General Formulation and the Bulk Radiative Exchange Approximation (77-HT-51) **HT 486**
Radok, R. *(editor)* Waves on Water of Variable Depth, Vol. 64 (BR) **AM 705**
Radius Expansion
Inner Radius Expansion of a Cylinder or a Sphere Under Cold Working (BN) **AM 198**
Radtke, R. P. CAVIJET™ Augmented Deep-Hole Drilling Bits (77-Pet-54) **PVT 52**; Stratapax Drill Bit for Gulf Coast Drilling (77-Pet-74) (TB) **PVT 234**
Rafat, N. M. Fuel Spray Trajectory in Diesel Engines (77-DGP-1) **P 326**
Raghavan, K. S. Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates **AM 521**
Rahnke, C. J. Reliability and Durability of Ceramic Regenerators in a Gas Turbine (77-GT-59) **P 73**
Rahman, Z. U. *(author)* Automatic Design (GR) **MD 205**
Rail-Car Impacts
A Simple Dynamic Model For Simulating Draft-Gear Behavior In Rail-Car Impacts (78-RT-2) **I 492**
Rail Load Stresses
Thermal Damage and Rail Load Stresses in a 33-Inch Railroad Car Wheel (77-WA/RT-2) **I 363**
Rail Passenger Vehicle Improvement
Rail Passenger Vehicle Lateral Dynamic Performance Improvement Through Active Control **DS 270**
Rail Transit Systems
Optimal Control of On-Board and Station Flywheel Storage for Rail Transit Systems **DS 284**
Rail Vehicle Operating Speed
Optimization of Rail Vehicle Operating Speed With Practical Constraints (78-WA/DSC-28) **DS 260**
Rail Vehicle Testing
A Survey of Rail Vehicle Testing for Validation of Theoretical Dynamic Analyses **DS 238**
Railcar Speed
A Parametric Study to Relate Railcar Speed to Permissible Combinations of Track Geometry Deviations **DS 252**
Railroad Cars
Ride Quality of Autorack Cars (77-WA/RT-7) **I 171**
Railroad Freight Car
Graphical Output-Oriented Computer Model of a Railroad Freight Car With Conventional Trucks (77-RT-11) **I 67**
Railroad Freight Car Truck
Optimizing Railroad Freight Car Truck Suspension Systems

Having Coulomb Damping (77-WA/RT-6) **I 311**; (D) **I 316**; (AC) **I 317**

Railroad Operations
Energy Requirements of the Rail Mode (78-RT-1) **I 475**

Railroad Track
Determination of Admissible Temperature Increases to Prevent Vertical Track Buckling **AM 565**

Railroad Wheels
Detection of Flaws in Railroad Wheels Using Acoustic Signatures (77-WA/RT-1) **I 459**; (D) (AC) **I 468**

Railway Mechanical Engineering Process
Progress in Railway Mechanical Engineering (1976-1977 Report of Survey Committee) Cars and Equipment (77-WA/RT-5) **I 79**

Railway Safety
Fatigue Strength and Maintenance of the Wheel-Axle Assembly for the Japanese Fast Train (Shinkansen) **MT 227**

Railway Systems
Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) **MD 242**

Railway Wheels
Wear of Titanium and Titanium Alloys Under Conditions of Rolling Stress **L 199**

Railway Vehicles
Nonlinear Kinematics of Wheel-Rail Contact **AM 664**

Raise Boring
Economic Factors of Mechanical Raise Boring (77-Pet-29) **PVT 98**

Raithby, G. D. Free Convection Across Inclined Air Layers With One Surface V-Corrugated **HT 410**; Heat Transfer by Natural Convection Between a Vertical Surface and a Stably Stratified Fluid (TN) **HT 378**

Raj, R. A Theoretical Investigation on the Structure of Fan Wakes (76-WA/FE-22) **F 113**

Rajaiah, K. Collocation Solution for Point-Supported Square Plates (BN) **AM 424**; A Note on the Reaction at Simply Supported Square Corners (BN) **AM 217**

Rajaram, S. Air Mixing in a Model Lung Alveolus **BE 211**

Raju, P. P. Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) **PVT 134**

Rake Angles
Orthogonal Machining of Bone **BE 122**

Ram Load/Displacement Curves
A Study of Wall Ironing by the Finite Element Technique (77-WA/PROD-8) **I 31**

Ram Velocity
Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) **PVT 194**

Ramachandra Rao, B. S. Eigenfunction Solutions for the Flexure of Clamped Rectangular Plates Lying on an Elastic Foundation (BN) **AM 211**

Ramadhyani, S. Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**; (Er) **HT 367**; Effect of Subcooling on Cylindrical Melting **HT 395**

Ramakrishna, K. Turbulent Heat Transfer by Free Convection from a Rough Surface (TN) **HT 727**

Ramalingam, S. Tool Life Distributions Part 3: Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) **I 193**; Part 4: Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) **I 201**

Ramaprain, B. R. Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) **F 37**; (D) **F 45**; (AC) **F 46**

Ramsey, J. W. Experiments on the Role of Natural Convection in the Melting of Solids **HT 11**; Melting and Natural Convection Due to a Vertical Embedded Heater (TN) **HT 368**

Rand, R. H. A Theoretical Analysis of CO_2 Absorption in Sun Versus Shade Leaves **BE 20**

Randall, K. R. Natural Convection in Compound Parabolic Concentrators—A Finite-Element Solution **HT 199**

Random Conductivity
A Perturbation Method for Studying Heat Conduction in Solid With Random Conductivity (BN) **AM 933**

Random Disturbances
Longitudinal Control of Automated Guideway Transit Vehicles Within Platoons **DS 302**

Random Error
Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) **MD 732**

Random Excitation
Response Envelope Statistics for Nonlinear Oscillators With Random Excitation **AM 170**
Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) **MD 681**

Randomly Excited Structure
An Experimental Study of First-Passage Failure of a Randomly Excited Structure (78-WA/APM-14) **AM 917**
Response of a Multidegree-of-Freedom System to Nonstationary Random Excitation **AM 649**
The Response of an Oscillator With Bilinear Hysteresis to Stationary Random Excitation **AM 923**

Random Fatigue Data
Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) **MT 70**

Random Function
Low Frequency Bloch Waves for Wave Equations Whose Speed Is a Deterministic, or Randomlike, Periodic Function **AM 331**

Random Initial Imperfections
Axial Impact Buckling of a Column with Random Initial Imperfections **AM 361**

Random Inputs
Power Spectral Density for Constrained Long Wavelength Guideway Irregularities (77-WA/Aut-13) **DS 18**

Random Response
A Survey of Rail Vehicle Testing for Validation of Theoretical Dynamic Analyses **DS 238**

Random Vibration
Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) **MD 619**
Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique **AM 393**
Wide-Band Random Vibration of Circular Plates (77-DET-97) **MD 690**

Rankin, G. W. Developing Region of Laminar Jets With Uniform Exit Velocity Profiles **F 55**; Solutions of Laminar Jet Flow Problems for Non-Newtonian Power Law Fluids (D) (AC) **F 500**

Rao, A. K. Collocation Solution for Point-Supported Square Plates (BN) **AM 424**; A Note on the Reaction at Simply Supported Square Corners (BN) **AM 217**

Rao, D. K. Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) **MD 667**

Rao, J. S. Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) **MD 528**

Rao, K. P. Pressurized Cylindrical Shell With a Rigid Circular Inclusion **PVT 158**

Rao, M. S. M. Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) **PVT 107**

Rao, N. S. Analysis of Dynamic Tilt Stiffness and Damping Coefficients of Externally Pressurized Porous Gas Journal Bearings **L 359**

Rao, S. S. Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/PROD-15) **I 137**; Computerized Selection of Optimum Machining Conditions for a Job Requiring Multiple Operations (77-WA/PROD-4) **I 356**; Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates **AM 521**; Optimization of Cold Rolling by Nonlinear Programming (77-WA/PROD-25) **I 186**; Optimum Design of Bridge Girders for Electric Overhead Traveling Cranes (76-WA/DE-28) **I 375**

Rao, Y. V. N. Influence of Volute Surface Roughness on the Performance of a Centrifugal Pump **F 473**

Rashed, M. I. The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Flow in Compressor Cascades (77-WA/FE-5) **F 22**

Rat Tail Tendon
Creep Failure of Rat Tail Tendon **BE 229**

Rate-Dependent Inelastic Properties
A State Variable Interpretation of Some Rate-Dependent Inelastic Properties of Steel **MT 395**

Rate Process Calculations
Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation **BE 49**

Rate-Sensitive Plastic Material
On the Dynamic Expansion of a Circular Hole in an Infinite Plate of Rate-Sensitive Plastic Material **AM 67**

Rational Flow
A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) **F 395**

Ratwani, M. M. Application of the R-Curve Concept to Fatigue Crack Growth **MT 416**; Application of Resistance Curves to Residual Strength Prediction **MT 138**; Crack Growth Resistance at Low Stress Intensities **MT 134**; A Parametric Study of Fatigue Crack Growth Behavior in Adhesively Bonded Metallic Structures (77-WA/Mat-5) **MT 46**

Raut, H. D. Report of Gasket Factor Tests **PVT 131**

Ravindran, A. Application of Goal Programming to Machinability Data Optimization (77-DET-19) **MD 286**

Rawlings, J. G. Acoustic Emission Examination **PVT 127**

Rawtani, S. Vibration Analysis of Circular Plates With Eccentric Hole (BN) **AM 215**

Ray, A. Approximation of Fundamental Equations for Finite-Dimensional Modeling of Thermo-Fluid Processes (TB) **P 722**; On the Application of Modern Control to Power Plants (D) (AC) **DS 94**; Fuel Controller Design in a Once-Through Subcritical Steam Generator System **P 189**

Ray Theory
Determination of Transient Responses of a Thick-Walled Spherical Shell by the Ray Theory **AM 114**
A Ray Theory for Elastodynamic Stress-Intensity Factors **AM 123**

Rayleigh Number
Correlation Equations for Turbulent Thermal Convection in a Horizontal Fluid Layer Heated Internally and from Below **HT 416**
Free Convection Across Inclined Air Layers with One Surface V-Corrugated **HT 410**
Transient Free Convection from a Suddenly Heated Horizontal Wire **HT 423**

Raynard, A. E. *(author)* Battery-Flywheel Hybrid Electric Power System for Near Term Application. Volume 2. System Design (GR) **MD 204**

Razem, C. I. The End-Values of Distributed Loads in Half Planes by Caustics **AM 313**

Reaction Chamber Pressures
The Preparation of Calcium Superoxide at Subambient Temperatures and Pressures (77-ENAs-55) **I 26**

Reactive Gases
Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) **HT 531**

Reactor Cavities
Assessment of Surface-Heating Problems in Laser-Fusion Reactors **HT 311**

Reactor Spatial Control
A Control Algorithm For Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**

Reactor Vessel Material
Assessment of Weld Heat-Affected Zones in a Reactor Vessel Material (78-Mat-14) **MT 267**
A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) **MT 272**

Reactor Vessel Nozzle Cracks
Stress Intensity Factors for Reactor Vessel Nozzle Cracks **PVT 141**

Reactors
Helium Blistering in Metals (78-Mat-5) **MT 411**
Special Engineering Problems of TFTR (77-WA/NE-4) **P 417**
Structural and Mechanical Design of Tokamaks (77-WA/NE-2) **P 404**
Tokamak Reactors (77-WA/NE-3) **P 412**

Reactors (BWR)
Pressure Tubes: The Pressure Vessels in the CANDU Nuclear Power Reactor (IPT) **PVT 328**

Reactors (HTGR)
Transient Analysis of a Permeable Thermal Barrier System (77-DE-24) **MD 127**

Reactors (LMFBR)
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**
Interferometric Investigation of Turbulently Fluctuating Temperature in an LMFBR Outlet Plenum Geometry (76-WA/HT-82) **HT 334**
Irradiation Effects on the Behavior of Structural Materials at Elevated Temperature **MT 121**
Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) **P 347**
The Room Temperature and Elevated Temperature Fracture Toughness Response of Alloy A-286 **MT 195**

Read, R. G. *(author)* Investigation of Rotary Actuation Technique (GR) **MD 206**

Real-Fluid Isentropic Flow
Exact and Approximate Equations for Real-Fluid Isentropic Flow **F 413**
Realistically Proportioned Mechanisms
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) **MD 762**
Reamers
The RAPIDEX Conical Reamer (77-Pet-31) **PVT 60**
Reaugh, J. E. A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**
Recovery Data
Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-WA/APM-3) **AM 507**
Rectangular Beam
Bending of a Nonlinear Rectangular Beam in Large Deflection (BN) **AM 213**
Rectangular Duct Flow
Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow **F 215**; (D) (AC) **F 377**
Rectangular Plate
On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) **MD 703**
Eigenfunction Solutions for the Flexure of Clamped Rectangular Plates Lying on an Elastic Foundation (BN) **AM 211**
A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangular Plates **AM 623**
Large Deflection of a Rectangular Plate Resting on a Pasternak-Type Elastic Foundation (Er) **AM 459**
A Note on Nodal Lines of Rectangular Plates (BN) **AM 691**
Natural Frequencies of Clamped Orthotropic Rectangular Plates With Varying Thickness (78-WA/APM-9) **AM 871**
A Note on the Reaction at Simply Supported Square Corners (BN) **AM 217**
Stability of a Nonlinear Rectangualr Plate **AM 583**
Strain Energy Minimization Leading to Timoshenko's Clamped Rectangular Plate Solution (BN) **AM 948**
Rectangular Orthotropic Region
Effect of Stress-Free Edges in Plane Shear of a Rectangular Orthotropic Region **AM 307**
Rectangular Simply Supported Plate
Stability of a Rectangular Simply Supported Plate Subjected to Nonincreasing Tangential Follower Forces (BN) **AM 223**
Red Cell Motion
Red Cell Motion and Deformation in the Microcirculation **BE 139**
Reddy, C. P. Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/PROD-15) **I 137**
Reddy, T. Y. Effect of Strain Hardening on the Large Plastic Deformation of a Cantilever (BN) **AM 953**
Reduced Fatigue Limit
A Cumulative Damage Rule Based on Successive Reduction in Fatigue Limit (TB) **MT 212**
Reed, R. P. Cryogenic Tensile, Fatigue, and Fracture Parameters for a Solution-Annealed 18 Percent Nickel Maraging Steel **MT 189**
Reed, W. S. The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) **MD 574**
Reference Planes
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part I Analysis (77-DET-52) **MD 382**
Refraction of Elastic Waves
Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**
Refrigerants
Experimental Study on the Effect of Orientation of Heating Circular Plate on Film Boiling Heat Transfer for Fluorocarbon Refrigerant R-11 **HT 824**
Refrigeration Compressor
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) **MD 599**
Regenerable Carbon Dioxide Absorber
Development of a Prototype Regenerable Carbon Dioxide Absorber for Portable Life Support Systems (77-ENAs-54) **I 383**
Regeneration Spectrum
Analysis and Design of Machine Tool Chatter Control Systems Using the Regeneration Spectrum **DS 191**
Regeneration-Thermodynamic Power Cycle
A Novel Absorption Regeneration-Thermodynamic Heat Engine Cycle **P 566**
Regenerative Chatter Stability
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/PROD-15) **I 137**
Regenerator Cores
Fracture Strength and Thermal Shock Resistance of Thick And Thin-Wall Magnesium-Aluminum-Silicate Ceramic Heat Regenerators (77-GT-98) **P 136**
Regenerator Design Improvement
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) **P 576**
Reich, M. Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**
Reid, S. R. Effect of Strain Hardening on the Large Plastic Deformation of a Cantilever (BN) **AM 953**
Reinicke, K. M. Plane Progressive Waves in a Binary Mixture of Linear Elastic Materials **AM 493**
Reistad, G. M. A Thermodynamic Study of Heating with Geothermal Energy (77-WA/Ener-1) **P 503**; Thermosyphon Models for Downhole Heat Exchanger Applications in Shallow Geothermal Systems **HT 713**
Relaxation Curves
Construction of Nonlinear Monotonic Functions With Selectable Intervals of Almost Constant or Linear Behavior (78-WA/APM-22) **AM 780**
Reliability Analysis
Development of Test and Analysis Plan for Mechanical Component Reliability **MD 204**
An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) **PVT 85**
Reliability Assessment
A New Cumulative Damage Model: Part I **AM 246**
Reliability Confidence Limits
Mechanical Reliability Confidence Limits (77-WA/DE-12) **MD 607**; (D) (AC) **MD 613**
Reliability Function
A New Cumulative Damage Model: Part 2 **AM 251**
Reliability Models
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/PROD-33) **I 318**
Relief Valve System
On the Nonlinear Response of a Relief Valve (77-DET-81) **MD 675**
Relief Valve Venting
Control of Steam Venting Noise in Power Plants (77-IPC-PWR-1) **P 369**
Remmers, E. P. Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) **MD 715**
Report of Survey Committee
Progress in Railway Mechanical Engineering (1976-1977 Report of Survey Committee) Cars and Equipment (77-WA/RT-5) **I 79**
Rescue Operations
A Portable Personal Cooling System for Mine Rescue Operations (77-ENAs-53) **I 53**
Research Combustor
Design and Development of a High-Pressure Combustor for Aero-Gas-Turbines (77-GT-96) **P 129**
Reservoirs
Choked Expension of Subcooled Water and the I.H.E. Flow Model **HT 275**
Instability of Elastically Suspended Tainter-Gate System Caused By Surface Waves on the Reservoir of a Dam (D) **F 140**; (AC) **F 141**
Residual Fiber Stress
Stress in Glass Fibers Induced by the Draw Force (78-WA/APM-21) **AM 785**
Residual-Flexibility Corrections
Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) **MD 251**
Residual Strains
Residual Strains Around Coldworked Fastener Holes **MT 310**
Residual Strength Prediction
Application of Resistance Curves to Residual Strength Prediction **MT 138**
Residual Stress
Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) **MD 433**
A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**
Resin Base
Variables Influencing Degradation of SiC Abrasive Papers **L 501**
Resistance Curves
Application of Resistance Curves to Residual Strength Prediction **MT 138**
Resistances
Application of the R-Curve Concept to Fatigue Crack Growth **MT 416**
Crack Growth Resistance at Low Stress Intensities **MT 134**
Resonance Conditions
Review—Self-Sustaining Oscillations of Flow Past Cavities **F 152**
Resonances
Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) **MD 26**
Resonant Conditions
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) **MD 715**
Resonant Dwell Technique
Nonlinear Material Damping for Nonsinusoidal Strain **AM 883**
Resonant Frequency
Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) **MD 667**
A Novel Pressure Transducer Using Mechanical Resonance **DS 83**
Resonant Motion
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**
Resonant Velocity
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**
Respiratory Mechanics
Canine Pulmonary Input impedance Measured by Transient Forced Oscillations **BE 67**
Mechanical Response of the Lungs at Frequencies **BE 57**
Response Curves
On the Nonlinear Response of a Relief Valve (77-DET-81) **MD 675**
Response Envelope Statistics
Response Envelope Statistics for Nonlinear Oscillators With Random Excitation **AM 170**; (D) (AC) **AM 964**
Response Modeling
Stored Response Modeling **DS 132**
Response Spectrum Method
Rational and Economical Multicomponent Seismic Design of Piping Systems (TB) **PVT 425**
Response Variables
Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique **AM 393**
Resource Recovery Endeavors
Fracture Discontinuities and S ructural Analysis in Resource Recovery Endeavors (77-Pet-32) **PVT 2**
Restivo, A. Turbulence Characteristics of the Flow Downstream of a Symmetric, Plane Sudden Expansion **F 308**; The Velocity Characteristics of Ventilated Rooms **F 291**
Retardation Time Influences
The Influence of the Retardation Time of the Heat Flux on Pulse Propagation (BN) **AM 433**
Retford, E. T. The Optimal Machine Tool Control Problem **DS 170**
Retina
Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation **BE 49**
Reverse Reaction
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) **DS 50**
Reversed Flow
A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) **F 395**
Reynolds, E. C., Jr. A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) **P 691**; (D) (AC) **P 697**
Reynolds Equation
Perturbation Solution of the 1-D Reynolds Equation With Slip Boundary Conditions **L 70**
Reynolds Number
Analytical Solutions of Viscous Flow in Constricted or Widened Tubes **AM 241**
Derivation of Turbulent Transport Parameters in Isotropic Turbulence (D) **F 139**; (AC) **F 140**
The Elliptic Porous Slider at Low Crossflow Reynolds

Numbers (TB) **L 444**
An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition from Laminar Forced Convection to Turbulent Free Convection over a Horizontal Isothermally Heated Plate **HT 429**
Flow in Finite-Width, Thrust Bearings Including Inertial Effects I—Laminar Flow **L 330**; II—Turbulent Flow **L 339**
The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments **PVT 297**
Gas Flow Through Cracks **F 453**
Loss Characteristics of Orifices and Nozzles **F 299**
Nonparallel Effects on the Stability of Jet Flow (78-WA/APM-16) **AM 717**
A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**
Peristaltic Pumping of a Newtonian Fluid With Particles Suspended in it at Low Reynolds Number Under Long Wavelength Approximations **AM 32**
Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow **F 215**
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**
A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) **F 443**
A Surface Rejuvenation Model for Turbulent Heat Transfer in Annual Flow With High Prandtl Numbers **HT 92**
Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**
Turbulence Characteristics of the Flow Downstream of a Symmetric, Plane Sudden Expansion **F 308**
Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, With or Without Buoyancy **HT 403**
A Yaw-Insensitive Static Pressure Probe **F 229**

Reynolds Number Dependence
Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow (D) (AC) **F 377**

Reynolds Stress Equation
A Theoretical Investigation on the Structure of Fan Wakes (76-WA/FE-22) **F 113**

Reynolds Stress Turbulence Models
An Evaluation of Mean Reynolds Stress Turbulence Models: The Triple Velocity Correlation **F 47**

Rhee, S. J. Natural Convection Heat Transfer in Beds of Inductively Heated Particles **HT 78**

Rheological Behavior
Nonlinear Constitutive Relations for Human Brain Tissue **BE 44**

Rheological Equations
Rheological Equations for Synovial Fluids **BE 169**

Rhodes, P. L. Combing of Opening Room Blends of Cotton and Polyester (77-Tex-5) **I 21**

Rice, J. R. On the Estimation of a Crack Fracture Parameter by Long-Wavelength Scattering (BN) **AM 453**

Rice, W. Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**

Richards, B. E. Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) **P 439**

Richardson, H. H. Steering Controller Design For Automated Guideway Transit Vehicles **DS 1**; Transportation Research and the Role of Dynamic Systems, Measurements, and Control (F) **DS 233**

Richter, H. J. An Isentropic Streamtube Model for Flashing Two-Phase Vapor-Liquid Flow **HT 595**

Ride Quality
Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part II—Simulated Versus Experimental Data **DS 319**
Ride Quality of Autorack Cars (77-WA/RT-7) **I 171**

Ride Quality Evaluation
Identification of the Dynamic Characteristics of a Bench-Type Automotive Seat for the Evaluation of Ride Quality **DS 42**

Ride Rating
The Prediction of Passenger Riding Comfort From Acceleration Data (77-WA/Aut-6) **DS 34**

Rieger, N. F. Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy **P 525**

Riemann-Integral Solutions
Riemann-Integral Solutions for the Plastic Slip-Line Fields Around Elliptical Holes (BN) **AM 678**

Rigid Bodies
Dynamics of Multirigid-Body Systems (78-WA/APM-10) **AM 889**
Dynamics of Systems of Rigid Bodies (BR) **AM 458**
The Effect of a Thin Layer Surface Inhomogeneity on Dynamic Surface Response **AM 95**
Instantaneous Invariants in Three-Dimensional Kinematics **AM 409**
A Note on the Stability of a Gyrostat With a Fixed Point (BN) **AM 676**

Rigid Body Dynamics
A Realistic Solution of the Symmetric Top Problem (78-WA/APM-20) **AM 903**

Rigid Body Vibration Response
Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part I—A Mathematical Model **DS 311**

Rigid Elliptic Inclusions
On Rigid Elliptic Inclusions in Orthotropic Solids (BN) **AM 883**

Rigid Indentor
The Sliding of a Rigid Indentor Over a Power Law Viscoelastic Layer **AM 111**

Rigid-Plastic Circular Plate
Response of a Rigid-Plastic Circular Plate in Contact With Newtonian Fluid (BN) **AM 199**

Rigid Plates
On the Contact Problem of a Highly Inflated Spherical Nonlinear Membrane (BN) **AM 202**
Dynamic Response of Circular Plates Resting on Viscoelastic Half Space **AM 379**

Rigid Tubes
Approximate Solution for Pulsatile Laminar Flow in a Circular Rigid Tube (TB) **F 131**

Riley, W. F. *(author)* Experimental Stress Analysis (BR) **AM 968**

Rinehart, R. E. Hunting Stability of the Three Axle Locomotive Truck (78-RT-6) **I 483**

Ring Analysis
Postbuckling Ring Analysis (BN) **AM 208**

Ring Arrestors
Propagating Buckle Arrestors for Offshore Pipelines **PVT 206**

Ring Elements
Stress Analysis of Pipe Bends by Ring Elements **PVT 112**

Ring Geometry
Limit Analysis of Hollow Disk Forging: Part 2: Lower Bound (77-WA/PROD-3) **I 347**; (D) (AC) **I 345**

Ring and Open-End Spinning
The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) **I 13**

Ring Spinning Machines
Calculation of Peak Yarn Tension During Ring-Spinning (77-Tex-6) **I 167**

Rings
The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearing (77-Lub-8) **L 18**
Nonlinear Flexural Vibration of an Elastic Ring (BN) **AM 428**
A Numerical Method For Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/Prod-35) **I 413**

Riser Design Aid
Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) **PVT 200**

Riser Upper Joint
A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) **PVT 91**

Rister, W. C. Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) **MT 57**

Ritchie, G. S. The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow (D) **F 337-380**; (AC) **F 380**

Rivulet Thermal Model
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**

Road Tests
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) **MD 644**

Roadway Roughness
Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part II—Simulated Versus Experimental Data **DS 319**

Roberge, R. Evaluation of the Creep Resistance of Wire Rope End Attachments (TB) **MT 214**

Roberts, A. B. An Experimental Study of First-Passage Failure of a Randomly Excited Structure (78-WA/APM-14) **AM 917**

Roberts, J. B. The Response of an Oscillator With Bilinear Hysteresis to Stationary Random Excitation **AM 923**; First-Passage Time for Oscillators With Nonlinear Damping **AM 175**

Roberts, J. M. DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**

Robertson, J. M. Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**

Robinson, A. R. An Exact Solution for the Superseismic Stage of Dynamic Contact Between a Punch and an Elastic Body (Er) **AM 459**

Robinson, M. Lower-Bound Limit Pressures for the Cylinder-Cylinder Intersection: A Parametric Survey **PVT 65**

Rock Bits
Increasing the Fracture Resistance of Cemented Carbides During the Drilling of Iron Ores (77-Pet-30) **PVT 74**

Rock Cutting Characteristics
Diamond Compact Cutter Studies for Geothermal Bit Design **PVT 406**

Rock Formations
A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) **PVT 184**

Rock Masses
Fluid Flow and Heat Transfer Through Hydraulically Induced Fractures in Hot, Dry Masses **PVT 277**

Rock Penetrator
Initial Response of a Rock Penetrator **AM 559**

Rocking Excitations
Dynamic Response of Circular Plates Resting on Viscoelastic Half Space **AM 379**

Rocks
Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-69) **PVT 179**

Rockwell, D. Review—Self-Sustaining Oscillations of Flow Past Cavities **F 152**

Rod Quasi-Bifurcation
Quasi-Bifurcation of Rods Within an Axial Plastic Compressive Wave **AM 100**

Rodgers, C. A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) **P 592**; (D) **P 601-602**; (AC) **P 602**

Rodkiewicz, C. M. Stress-Induced Radial Pressure Gradients in Liquid-Filled Multiple Concentric Cylinders (D) **AM 228**; Vertical Channel Parallel Flow Modification Associated With Density Extremum (TB) **F 128**

Rohde, R. W. Constitutive Modeling of Elevated Temperature Stress Relaxation in Austenitic Stainless Steels (TB) **MT 221**

Rohde, S. M. On the Transmissibility of Short Porous Journal Bearings (D) **L 302**; (AC) **L 303**; *(recipient)* Burt L. Newkirk Award **L 11**

Rohsenow, W. M. An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**; Performance Ranking of Plate-Fin Heat Exchanger Surfaces (76-WA/HT-31) **HT 514**

Roll Forces
Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) **I 186**

Roll Torque
Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) **I 159**

Rolled Metal
A Comparative Study of Various Empirical Relations Applicable in Hot Strip Rolling (TB) **MT 430**

Roller Bearings
The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearing (77-Lub-8) **L 18**
Lubrication of High-Speed, Large Bore Tapered-Roller Bearings (77-Lub-13) **L 31**
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) **MD 696**

Roller Cutter Drilling Bit
The RAPIDEX Conical Reamer (77-Pet-31) **PVT 60**

Roller Speed
Measurement of Roller Speed in a Cylindrical Roller Bearing Using a Laser Anemometer **L 486**

Roller Tests
Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) **MD 433**

Rollers
Surface Ribbing of a Thin Viscous Fluid Film Emerging From

a Spreader or Roller **L 462**

Rolling Conditions
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) **MD 440**

Rolling Contacts
Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) **L 404**; (D) **L 416**; (AC) **L 417**
Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) **L 386**; (D) **L 393**; (AC) **L 394**

Rolling Disks
Determining the Coefficient of Friction for Rolling Disks (77-Lub-11) **L 25**

Rolling Element Bearing Damage
Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) **MD 229**

Rolling-Element Bearings
A High-Speed Rolling-Element Bearing Loss Investigation (77-GT-86) **P 40**; (D) **P 45**; (AC) **P 46**
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) **L 395**

Rolling-Element Fatigue Life
Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) **L 156**; (D) (AC) **L 165**
Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) **L 226**; (D) **L 232, 233**; (AC) **L 234**

Rolling Elements
Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-LUB-14) **L 39**

Rolling Motion
Nonlinear Kinematics of Wheel-Rail Contact **AM 664**

Rolling Steel Cylinders
A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) **L 110**

Rolling Stress
Wear of Titanium and Titanium Alloys Under Conditions of Rolling Stress **L 199**

Rolling Tire Motion
Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part I—A Mathematical Model **DS 311**

Rolling Traction
An Approximate Equation for Predicting the Isothermal and Nonisothermal Starved Rolling Traction in an E.H.L. Line Contact **L 472**
The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact Part I: Fully Flooded Conditions **L 346**; (Er) **L 466**; Part II: Starved Conditions **L 353**

Rongved, L. Stress in Glass Fibers Induced by the Draw Force (78-WA/APM-21) **AM 765**

Roof Rock Collapse
An Assessment of Overburden Stability in the In-Situ Gasification of Texas Lignite **PVT 285**

Room Temperature
The Room Temperature and Elevated Temperature Fracture Toughness Response of Alloy A-286 **MT 195**

Rope End Attachments
Evaluation of the Creep Resistance of Wire Rope End Attachments (TB) **MT 214**

Rosenberg, R. C. An Analysis of Stress Relaxation in Elastno-Viscous Fluid Lubrication of Journal Bearings (D) **L 294**; (AC) **L 295**; On Gyrobondgraphs and Their Uses **DS 76**

Rosenberg, R. M. *(author)* Analytical Dynamics of Discrete Systems (BR) **AM 223**

Ross, D. C. Therapeutic Effects of Postburn Cooling **BE 149**

Rossetto, S. Machining Economics and Tool Life Variation—Part 1: Basic Considerations and Their Practical Implications (77-WA/Prod-12) **I 393**; Part 2: Application to Models for Machining Processes (77-WA/Prod-13) **I 397**; (D) **I 401**; (AC) **I 402**

Rossettos, J. N. Analysis of Minimum Crush Deformation in Impact of Vehicles of Different Weight Classes (TB) **I 294**

Rossow, M. P. Observations on Numerical Modeling of an Obtuse Corner of a Simply Supported Plate (BN) **AM 855**

Ross-Ross, P. A. Pressure Tubes: The Pressure Vessels in the CANDU Nuclear Power Reactor (IPT) **PVT 328**

Rotary Actuation Technique
Investigation of Rotary Actuation Technique (GR) **MD 206**

Rotary Ceramic Regenerator Core
Aluminous Keatite—An Improved Rotary Ceramic Regenerator Core Material (77-GT-60) **P 36**

Rotary Dressing
Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/Prod-27) **I 297**
Mechanics of Rotary Dressing of Grinding Wheels (77-WA/Prod-23) **I 95**

Rotary Energy
The Flapwing, A Unique Fluid Machine Element **F 237**

Rotary-Vibratory Drilling
Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-69) **PVT 179**

Rotating Asymmetric Shaft
Influence of Unequal Pedestal Stiffness on the Instability Regions of a Rotating Asymmetric Shaft **AM 400**

Rotating Axis
Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) **MD 723**

Rotating Bends
Second Flow in Rotating Bends **P 553**

Rotating Blade Damper System
Tailoring the Waveform of a Periodic Flow With a Programmable Damper **F 287**

Rotating Blades
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D) (AC) **P 591**

Rotating Bodies
Laminar Boundary Layer Transfer over Rotating Bodies in Forced Flow **HT 496**

Rotating Cylinders
The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow **F 210**
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) **L 261**; (D) **L 269**; (AC) **L 270**

Rotating Disks
J-Integral Approach to Fracture of Rotating Disk **MT 128**

Rotating Disturbances
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**

Rotating Flows
Sufficient Conditions for Stability of Rotating Flows **AM 7**

Rotating Inner Sphere
Frictional Moment of Flow Between Two Concentric Spheres, One of Which Rotates **F 97**

Rotating Machinery Response
Optimum Bearing and Support Damping for Unbalance Response and Stability of Rotating Machinery (77-GT-27) **P 89**

Rotating Porous Cylinder
Lift on a Rotating Porous Cylinder (D) **F 136**; (AC) **F 137**

Rotating Shafts
The Riccati Transfer Matrix Method (77-DET-32) **MD 297**

Rotating Spheres
Frictional Moment of Flow Between Two Concentric Spheres, One of Which Rotates (D) **F 246**; (AC) **F 247**

Rotating Spherical Annulus
Partial Spectral Expansions for Problems in Thermal Convection **HT 435**

Rotating Stall
Prediction of Compressor Performance in Rotating Stall (77-GT-10) **P 1**; (D) **P 13**; (AC) **P 14**

Rotating Surfaces
Stokes Flow Due to Circular Scraping (BN) **AM 956**

Rotating Tubes
The Dynamics of Thin Liquid Films in Rotating Tubes: Approximate Analysis **F 187**

Rotating Water Table
Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy **P 525**

Rotating Wheels
Wheel Rotations and Trailer Dynamics (BN) **AM 206**

Rotation Analysis
Kinematics of Jaw Growth (77-WA/Bio-15) **BE 93**

Rotation Axis
A Method for Locating an Optimal "Fixed" Axis of Rotation for the Human Knee Joint **BE 187**

Rotation Tensor
Finite Elasticity Solutions Using Hybrid Finite Elements Based on a Complementary Energy Principle (78-WA/APM-1) **AM 539**

Rotational Constraints
Vibration Frequencies for a Uniform Cantilever With a Rotational Constraint at a Point (DDM) **AM 422**

Rotational Flow
Inviscid Rotational Flow Through Sprays (BN) **AM 934**

Rotational Speed
Measurements of the Performance of an Turbine Stage at Positive and Negative Mass Flow and Rotational Speed (Four-Quadrant Characteristics) (77-GT-14) **P 22**

Rotational Vibration
Rotational Vibration With Backlash: Part 1 (77-DET-105) **MD 363**; (Er) **MD 582**

Rotations
Successive Finite Rotations (BN) **AM 945**

Rotatory Inertia
Influence of Rotary Inertia on Steady-State Crack Propagation in a Finite Plate Subjected to Out-of-Plane Bending **AM 130**
The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity **AM 643**

Rothe, P. H. First-Order Pump Surge Behavior (77-WA/FE-12) **F 459**

Rotor Blades
The Effect of Hub Fairings on Wind Turbine Rotor Performance (TB) **F 120**
The Influence of Droplet Size on the Turbine Blading Erosion Hazard **P 561**
Interaction of the Rotor Blade Shock Waves in Supersonic Compressors With Upstream Stator Vanes (77-GT-93) **P 140**
Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) **P 432**
Progress on Ceramic Rotor Blade Development for Industrial Gas Turbines (77-GT-42) **P 58**

Rotor Deviation Angle
A Method of Calculating the Slip Factor of Centrifugal Compressors From Deviation Angle (77-GT-64) **P 121**

Rotor Instability
Some Experiments of Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) **MD 147**

Rotor Passage
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P 676**; (D) **P 688-689**; (AC) **P 689**

Rotor Vibrations
Flow Excited Vibrations in High-Pressure Turbines (Steam Whirl) **P 219**
Fluid Dynamic Excitation of Centrifugal Compressor Rotor Vibrations (77-FE-22) **F 73**

Rotor Wake
Rotor Wake Generated Unsteady Aerodynamics Response of a Compressor Stator (78-GT-112) **P 664**; (D) (AC) **P 675**

Rotordynamic Analysis
Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) **MD 251**

Rotordynamic Instability
The Space Shuttle Main Engine High-Pressure Fuel Turbopump Rotordynamic Instability Problem (77-GT-49) **P 48**

Rotors
Aerodynamic Design and Verification of a Two-Stage Turbine With a Supersonic First Stage **P 197**
Air Model Tests of Labyrinth Seal Forces on a Whirling Rotor **P 533**
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) **MD 558**
Analytical Modeling of Helical Screw Turbines for Performance Prediction **P 482**
Critical Speeds, Stability and Response of a Geared Train of Rotors (77-DET-30) **MD 535**; (D) **MD 538**; (AC) **MD 539**
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) **L 369**; (D) (AC) **L 377**
Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**
An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) **MD 216**
A Flow Model for Centrifugal Compressor Rotors (77-GT-62) **P 148**
High-Temperature Potential of Uncooled Radial Turbines (77-GT-46) **P 294**
Lower Bounds for Gravest Torsional Frequencies (BN) **AM 197**

Nonaxisymmetric Flow Through Annular Actuator Disks: The View From the Rotor (Ad) **P 615**
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) **P 647**
A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) **MD 165**
Steady-State Unbalance Response of a Three-Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) **MD 563**
Three-Shaft Automotive Turbine-Transmission Systems of the KTT Type—Performance and Features (77-GT-94) **P 95**
Torquewhirl—A Theory to Explain Nonsynchronous Whirling Failures of Rotors With High-Load Torque **P 235**
Transient Response of a Rotor in Damped Bearings (77-DET-21) **MD 257**
On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) **L 296**; (D) **L 302**; (AC) **L 303**

Rough Surface
Depth of Penetration as a Predictor of the Wear Polymers on Hard, Rough Surfaces **L 92**
Experimental Heat Transfer Behavior of a Turbulent Boundary Layer on a Rough Surface With Blowing **HT 134**
Turbulent Heat Transfer by Free Convection from a Rough Surface (TN) **HT 727**

Roughness Effect
Gas Flow Through Cracks **F 453**
On the Roughness Effect in Hydrodynamic Lubrication **L 176**; (D) (AC) **L 180**

Roughness Measurements
Asperity Interactions In EHD Contacts (77-Lub-19) **L 246**; (D) **L 252**; (AC) **L 253**

Round, G. F. Nonparallel Effects on the Stability of Jet Flows (78-WA/APM-16) **AM 717**

Rozeanu, L. Two Temperature Gradients Model for Friction Failure (77-Lub-28) **L 479**; (D) **L 484**; (AC) **L 485**

Round Jets
The Effect of Buoyancy on the Turbulence Structure of Vertical Round Jets **HT 659**

Rowles, R. T. Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (D) (AC) **L 90**

Rowlett, B. H. *(author)* Battery-Flywheel Hybrid Electric Power System for Near Term Application. Volume 2. System Design (GR) **MD 204**

Roux, J. A. Combined Conductive and Radiative Heat Transfer in an Absorbing and Scattering Infinite Slab (77-HT-50) **HT 98**

Royal, J. H. Augmentation of Horizontal In-Tube Condensation by Means of Twisted-Tape Inserts and Internally Finned Tubes **HT 17**

Roylance, B. J. Traction Behavior in Sliding ehl Contacts (77-Lub-5) **L 115**

Rozeanu, L. Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) **L 167**; (D) (AC) **L 174**

Rubber Flats
The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) **L 219**; (D) **L 224**; (AC) **L 225**

Rubin, C. Stability of Polar-Orthotropic Sector Plates (BN) **AM 448**

Rubinsky, B. Analytic Solutions to the Heat Equation Involving a Moving Boundary with Applications to the Change of Phase Problem (the Inverse Stefan Problem) **HT 300**

Rudinger, G. Experimental Study of a Solid-Gas Jet Issuing Into a Transverse Stream (D) **F 338**; (AC) **F 339**

Ruled Surface
Instantaneous Invariants in Three-Dimensional Kinematics **AM 409**

Runner Characteristics
A Design Method on Propeller Current Meters (77-WA/FM-5) **F 83**

Runstadler, P. W., Jr. First-Order Pump Surge Behavior (77-WA/FE-12) **F 459**

Rupture Parameter
On the Minimum-Commitment Method for Correlation of Creep-Rupture Data (TB) (78-Mat-18) **MT 333**

Rupture Properties
High Temperature Properties and Constitutive Equations for 1 Cr-½ Mo Steel (77-PVP-50) **PVT 246**

Ruptured Floating Roofs
Stresses in Ruptured Floating Roofs **PVT 291**

Rutenberg, A. Vibration Frequencies for a Uniform Cantilever With a Rotational Constraint at a Point (DDM) **AM 422**

Ryan, E. P. Quasi-Time-Optimal Feedback Control of Some Fifth-Order Systems **DS 201**

Rybicki, E. F. A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**

S

Sackman, J. L. A Quadrature Representation of the Viscoelastic Analogy in the Frequency Domain (BN) **AM 955**; Response of a Realistic Human Head-Neck Model to Impact **BE 25**

Sadananda, K. Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) **MT 381**

Sadd, M. H. Temperatures in an Anisotropic Sheet Containing an Insulated Elliptical Hole (TN) **HT 553**

Sadek, M. M. Determination of Dynamic Characteristics of an Impact Forming Machine Structure (77-WA/Prod-5) **I 434**; Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/Prod-1) **I 113**

Safar, Z. S. Thermohydrodynamic Analysis for Laminar Flow Journal Bearing (TB) **L 510**

Safety Assessment
A New Cumulative Damage Model: Part I **AM 246**

Safety Factor
Mechanical Reliability Confidence Limits (77-WA/DE-12) **MD 607**; (D) (AC) **MD 613**

Safety Valves
Control of Steam Venting Noise in Power Plants (77-IPC-Pwr-1) **P 369**

Sagartz, M. J. Elastic-Plastic Response of 304 Stainless Steel Beams to Impulse Loads (BN) **AM 685**

Saibel, E. A. On the Roughness Effect in Hydrodynamic Lubrication **L 176**; (D) (AC) **L 180**

Saint-Venant's Principle
Saint-Venant's Principle and End Effects in Anisotropic Elasticity (D) **AM 455**
Saint-Venant's Principal for a Helical Spring **AM 297**

Saito, H. The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity **AM 643**

Saito, T. Design and Development of a High-Pressure Combustor for Aero-Gas-Turbines (77-GT-96) **P 129**

Saitoh, T. Numerical Method for Multi-Dimensional Freezing Problems in Arbitrary Domains **HT 294**

Sakai, T. A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) **MD 451**

Sakata, M. J-Integral Approach to Fracture of Rotating Disk **MT 128**

Sakata, T. Natural Frequencies of Clamped Orthotropic Rectangular Plates With Varying Thickness (78-WA/APM-9) **AM 871**; A Note on Nodal Lines of Rectangular Plates (BN) **AM 691**

Sakuragi, I. A Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) **MD 470**

Salama, A. L. Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 660**

Salencon, J. *(author)* Applications of the Theory of Plasticity in Soil Mechanics (BR) **AM 705**

Sallas, J. J. Tailoring the Waveform of a Periodic Flow With a Programmable Damper **F 287**

Salt, D. L. Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) **F 17**

Saltzman, G. A. Centrifugally Cast Metallurgical Coatings for Wear Resistance in Plastics Molding Machines **L 423**

Salzman, R. N. Experimental Study of a Solid-Gas Jet Issuing Into a Transverse Stream (78-WA/FE-2) **F 333**; (D) **338**; (AC) **F 339**

Sanborn, D. M. Asperity Interactions In EHD Contacts (77-Lub-19) **L 246**; (D) **L 252**; (AC) **L 253**; Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) **L 404**; (D) **L 416**; (AC) **L 417**

Sandall, O. C. Heat Transfer in Turbulent Pipe Flow for Liquids Having a Temperature-Dependent Viscosity **HT 224**

Sanday, S. C. Progress on Ceramic Rotor Blade Development for Industrial Gas Turbines (77-GT-42) **P 58**

Sanders, J. L., Jr. *(reviewer)* A First Course in Continuum Mechanics (BR) **AM 969**

Sanders, J. R. The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) **MD 762**

Sandler, I. S. On the Uniqueness and Stability of Endochronic Theories of Material Behavior **AM 263**

Sandor, G. N. Model Formulation of Complex Mechanisms With Multiple Inputs: Part II—The Dynamic Model (D) (AC) **MD 761**

Sandwich Beams
Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) **MD 667**

Sankar, S. Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) **MD 303**

Sankar, T. S. Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) **MD 619**

Sanokawa, K. Transient Temperature Profile of a Hot Wall Due to an Impinging Liquid Droplet (TN) **HT 167**

Saravanja-Fabris, N. Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) **MD 92**

Sarma, P. K. Dynamics of Developing Laminar Non-Newtonian Falling Liquid Films With Free Surface **AM 19**; Turbulent Heat Transfer by Free Convection from a Rough Surface (TN) **HT 727**

Sasada, T. Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear **L 492**; (D) (AC) **L 499**

Sato, K. The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity **AM 643**

Sato, S. Combined Mode Fracture Toughness Measurement by the Disk Test **MT 175**

Sauerwine, F. Limit Analysis of Hollow Disk Forging: Part 1: Upper Bound (77-WA/Prod-2) **I 340**; (D) (AC) **I 345**; Part 2: Lower Bound (77-WA/Prod-3) **I 347**; (D) (AC) **I 345**

Sauls, J. R. A Diffusion Factor Correlation for Centrifugal Impeller Stalling (D) (AC) **P 602**

Saunders, H. *(reviewer)* Finite Element Methods in Engineering (BR) **MD 591**

Savery, C. W. Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (TN) **HT 539**

Savlonis, B. J. Particle Deposition in a Charged Aerosol Flowing Through a Conducting Tube **F 449**

Savkin, V. G. Methods of Decreasing Wear in Metal-Polymer Contacts **L 185**; (Er) **L 466**

Saw Blade Temperature
Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/Prod-22) **I 119**

Sawyer, R. F. Radiation From a Methanol Furnace (77-HT-14) **HT 247**

Sax, M. Nonlinear Material Damping for Nonsinusoidal Strain **AM 883**

Saxena, U. C. Heat Transfer from a Cylinder Oscillating in a Cross-Flow **HT 684**

Scaling Applications
Thermoelastic Effects in Frictionally Heated Line Contact of Slablike Bodies (77-Lub-21) **L 136**

Scaling Laws
Experimental Tests of the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 605**
On the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 601**

Scalloped Closure
Geometry of Scalloped Closures for Cylindrical Vessels (TB) **PVT 310**

Scanning Technique
An Optical Scanning Technique for Measuring Fiber Size (77-Tex-1) **I 1**

Scarf Joint
Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) **MT 64**

Scatter
Tool Life Distributions—Part 4: Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) **I 201**

Scattering
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) **P 520**
On the Estimation of a Crack Fracture Parameter by Long-Wavelength Scattering (BN) **AM 453**
On the Growth of Steam Droplets Formed in a Laval Nozzle Using Both Static Pressure and Light Scattering Measurements **F 311**
Moisture Measurements in a Low Pressure Steam Turbine Using a Laser Light Scattering Probe **P 544**
Noninvasive Inference of Airway Network Geometry From

Broadband Lung Reflection Data **BE 131**

Two-Dimensional Multiple Scattering Comparison of Theory with Experiment (77-HT-48) **HT 480**

Scattering Infinite Slab

Combined Conductive and Radiative Heat Transfer in an Absorbing and Scattering Infinite Slab (77-HT-50) **HT 98**

Scavuzzo, R. J. Normal Model Solution of Fluid-Coupled Concentric Cylindrical Vessels (77-PVP-37) **PVT 350**

Schlueter, R. A. The Optimal Machine Tool Control Problem **DS 170**

Schmidt, F. W. Analysis of the Effects of Finite Conductivity in the Single Blow Heat Storage Unit (TN) **HT 740**; Transient Behavior of a Solid Sensible Heat Thermal Storage Exchanger **HT 148**; Transient Response of a Hollow Cylindrical-Cross-Section Solid Sensible Heat Storage Unit—Single Fluid (TN) **HT 737**

Schmidt, G. *(author)* Parametererregte Schwingungen (BR) **AM 229**

Schmidt, P. S. Magnetic Field Effects on Bubble Growth in Boiling Liquid Metals **HT 466**

Schmidt, R. Shear-Stress Formulas and the Shear Center for Curved Beams (BN) **AM 436**

Schmidt, R. R. Experiments on the Role of Natural Convection in the Melting of Solids **HT 11**; Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**

Schmitendorf, W. E. *(reviewer)* Analytical Dynamics of Discrete Systems (BR) **AM 233**

Schmitt, J. A. Asymptotic Methods for a General Finite Width Gas Slider Bearing **L 254**

Schmueser, D. W. A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**

Schneider, R. W. The Background of ASME Code Case 1828: A Simplified Method of Analyzing Part B Flanges **PVT 215**

Scholten, J. Wear of Titanium and Titanium Alloys Under Conditions of Rolling Stress **L 199**

Schramm, R. E. Cryogenic Tensile, Fatigue, and Fracture Parameters for a Solution-Annealed 18 Percent Nickel Marging Steel **MT 189**

Schreiber, C. H. Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) **P 520**

Schroeder, J. Plastic Stability of Pipes and Tees Exposed to External Couples **PVT 424**

Schuster, C. L. Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) **PVT 24**

Schwartz, S. H. Experimental Study of a Solid-Gas Jet Issuing Into a Transverse Stream (78-WA/FE-2) **F 333**; (D) **F 338**; (AC) **F 339**

Schwerdfeger, H. Flow Excited Vibrations in High-Pressure Turbines (Steam Whirl) **P 219**

Schwerzler, D. D. Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) **MD 599**

Scott, S. J. Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) **MD 681**

Screw Turbines

Analytical Modeling of Helical Screw Turbines for Performance Prediction **P 482**

Scroll-Nozzle Assembely

A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) **F 31**; (D) **F 250**; (AC) **F 252**

Seal Whirl Force

Air Model Tests of Labyrinth Seal Forces on a Whirling Rotor **P 533**

Sealed Liquid

Phase Change in Liquid Face Seals (77-Lub-12) **L 74**; (D) (AC) **L 79**

Seals

Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) **L 81**; (D) (AC) **L 90**

Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) **L 379**; (D) (AC) **L 384**

A Wind-Tunnel Study of the Effects of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) **F 434**

Seban, R. A. Wave Effects on the Transport to Falling Laminar Liquid Films **HT 143**

Secondary Flow

Second Flow in Rotating Bends **P 553**

Secondary Input

Use of Secondary Input for Process Control—An Application to a Digester Pulping Process **DS 88**

Sector Plates

Stability of Polar-Orthotropic Sector Plates (BN) **AM 448**

Seetharamu, K. N. Turbulent Heat Transfer by Free Convection from a Rough Surface (TN) **HT 727**

Seinfeld, J. H. An Evaluation of Mean Reynolds Stress Turbulence Models: The Triple Velocity Correlation **F 47**

Seireg, A. Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) **MD 26**; A Strategy for the Optimum Design of Acoustic Space (77-DET-44) **MD 411**

Seismic Design

Rational and Economical Multicomponent Seismic Design of Piping Systems (TB) **PVT 425**

Uniqueness of Damping and Stiffness Distributions in the Identification of Soil and Structural Systems **AM 181**

Seki, M. Transient Temperature Profile of a Hot Wall Due to an Impinging Liquid Droplet (TN) **HT 167**

Seki, N. Experimental Study on the Effect of Orientation of Heating Circular Plate on Film Boiling Heat Transfer for Fluorocarbon Refrigerant R-11 **HT 624**; Heat Transfer in a Cavity Packed with Fibrous Glass (TN) **HT 748**

Selenium

Influence of Selenium and Tellurium on the Fatigue of Low-Carbon Steel (TB) **MT 216**

Self-Excited Chatter Vibrations

Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) **MD 92**

Sell, G. R. *(reviewer)* The Hopf Bifurcation and Its Application (BR) **AM 234**

Semi-Infinite Liquid Jet

Wave Propagation and Instability in a Circular Semi-Infinite Liquid Jet Harmonically Forced at the Nozzle **AM 469**

Semi-Infinite Plate

Laminar Shear Layer Due to a Thin Flat Plate Oscillating With Zero Mean Velocity (78-WA/FE-16) **F 367**

Semi-Infinite Solid Surface

Thermal Stresses From a Moving Band Source of Heat on the Surfafe of a Semi-Infinite Solid (77-WA/Prod-26) **I 43**

Semi-Transparent Plate

Combined Conduction-Radiation Heat Transfer Through an Irradiated Semi-transparent Plate (TN) **HT 169**

Senseny, P. E. Experiments on Strain Rate History and Temperature Effects During the Plastic Deformation of Close-Packed Metals **AM 60**

Sensible Heat Storage

Transient Response of a Hollow Cylindrical-Cross-Section Solid Sensible Heat: Storage Unit—Single Fluid (TN) **HT 737**

Sensitivity Analysis

Sensitivity Analysis and Optimal Design of a Mechanical System with Intermittent Motion (77-DET-3) **MD 492**; (D) (AC) **MD 498**

Sensitivity Analysis and Optimization of Structures for Dynamics Response (77-DET-40) **MD 311**

Sensitivity Functions

The Use of Sensitivity Functions to Match Matrix Transfer Functions to Time-Domain Performance Criteria **DS 187**

Sensitivity Variation

Bubble Growth in Variable Pressure Fields **HT 453**

Sensor Locations

A Methodology for Optimal Sensor Locations for Identification of Dynamic Systems **AM 188**

Separated Bodies

Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**

Separated Viscous Flow

Numerical Modeling of Unsteady, Separated Viscous Flow (D) **F 138**; (AC) **F 139**

Separating Flow

Prediction of Incompressible Turbulent Separating Flow (78-WA/FE-4) **F 427**

Separation-Reattachment Wall Pressures

Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**

Separation Waves

Elastic Interface Waves Involving Separation (D) **AM 226**; (AC) **AM 227**

Serany, A. Perturbation Solution of the 1-D Reynolds Equation With Slip Boundary Conditions **L 70**

Server, W. Assessment of Weld Heat-Affected Zones in a Reactor Vessel Material (78-Mat-14) **MT 267**

Server, W. L. General Yielding of Charpy V-Notch and Precracked Charpy Specimens **MT 183**

Servomechanisms

A Brief History of Electrohydraulic Servomechanisms **DS 110**

Servovalve

An Analysis of the Three-Way Underlapped Hydraulic Spool Servovalve **DS 117**

Sethna, P. R. Bifurcations in Dynamical Systems With Internal Resonance (78-WA/APM-12) **AM 895**; *(reviewer)* The Hopf Bifurcation and Its Application (BR) **AM 234**

Settling Control

Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) **DS 50**

Shaalan, M. R. A. The Effect of Periodic Errors in Blade Setting on the Potential Incompressible Flow in Compressor Cascades (77-WA/FE-5) **F 22**

Shaft Mining

An Assessment of Overburn Stability in the in-Situ Gasification of Texas Lignite **PVT 285**

Shaft Whirling

Torquewhirl—A Theory to Explain Nonsynchronous Whirling Failures of Rotors With High-Load Torque **P 235**

Shafts

Influence of Unequal Pedestal Stiffness on the Instability Regions of a Rotating Asymmetric Shaft **AM 400**

Stress-Strain Analysis of Cyclic Plastic Bending and Torsion **MT 157**

Shah, P. C. A Methodology for Optimal Sensor Locations for Identification of Dynamic Systems **AM 188**; Uniqueness of Damping and Stiffness Distributions in the Identification of Soil and Structural Systems **AM 181**

Shah, R. K. A Correlation for Laminar Hydrodynamic Entry Length Solutions for Circular and Noncircular Ducts **F 177**

Shah, S. N. Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) **I 159**

Shahinian, P. Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) **MT 381**

Shahravan, C. Load-Deformation Behavior of Elastic Beam-Columns of Yielding Foundations **P 182**

Shalaby, A. H. Further Investigation of a New Hardening Law in Crystal Plasticity **AM 500**

Shallow Circular Arches

Optimal Shape of Shallow Circular Arches Against Snap-Buckling **AM 591**

Shallow Formation Hydrofracture

Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) **PVT 24**

Shallow Shells

Annular Dome Subjected to Uniform Load Over an Eccentric Circular Area **AM 845**

Stress-Intensity Factors for Arbitrarily Oriented Cracks in Shallow Shells **AM 135**

Shallow Spherical Shells

The Dynamic Analysis of Shallow Spherical Shells (BN) **AM 690**

Shape Factors

Approximate Radiation Shape Factors between Two Spheres (TN) **HT 547**

Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates **AM 521**

Shape Modes

On the Shape Modes in Damped Systems (BN) **AM 951**

Sharma, D. K. Uniqueness of Damping and Stiffness Distributions in the Identification of Soil and Structural Systems **AM 181**

Sharma, M. P. A Novel Physico-Computational Model for Quasi One-Dimensional Gas-Particle Flows (76-WA/FE-36) **F 343**

Sharma, P. R. On the Mikic-Rohsenow Pool Boiling Correlation (TN) **HT 733**

Sharma, R. K. An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-22) **MD 216**; Experiments on the Transient Response of Oil-Film Dampers (77-GT-31) **P 30**

Sharp-Edged Orifices

Loss Characteristics of Orifices and Nozzles **F 299**

Sharpe, W. N., Jr. Measurement of the Elastic-Plastic Boundary Around Coldworked Fastener Holes (78-WA/APM-2) **AM 515**; Residual Strains Around Coldworked Fastener Holes **MT 310**

Shaughnessy, E. J. Partial Spectral Expansions for Problems in Thermal Convection **HT 435**

Shaukatullah, H. Effect of Flow Direction on Calibration of Hot-Film Anemometers at Low Velocities (TN) **HT 381**
Shaw, H. Development of a Hybrid Catalytic Combustor **P 267**
Shaw, M. C. The Conflicting Roles of Carbontetrachloride as a Boundary Lubricant (77-WA/Prod-7) **I 244**
Shawki, G. S. A. Dynamic Severity Criterion for Designing Against High Cycle Fatigue (77-DE-28) **MD 10**
Shear
Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**
Fracture Under Combined Loads by Maximum-Energy-Release-Rate Criterion **AM 553**
Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear **L 492**; (D) (AC) **L 499**
On a New Model of Oblique Cutting (77-WA/Prod-6) **I 287**
Shear Coefficient
On the Variation of Timoshenko's Shear Coefficient With Frequency (BN) **AM 695**
Shear Deformation
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) **MD 558**
Dynamics of Developing Laminar Non-Newtonian Falling Liquid Films With Free Surface **AM 19**
A Note on the Reaction at Simply Supported Square Corners (BN) **AM 217**
Stress Analysis of Pipe Bends by Ring Elements **PVT 112**
Shear Field
The Interface Crack in a Shear Field **AM 287**
Shear Flows
Calculation of Turbulent Shear Flows: Status and Ten-Year Outlook (Op) **F 3**
Shear Fracture Propagation
Shear Fracture Propagation by DCB Testing (77-Pet-33) **PVT 18**
Shear Fractures
On the Gasdynamics of Running Ductile Fracture in a Pressurized Line Pipe (78-PVP-3) **PVT 13**
Shear Heating
The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact Part I: Fully Flooded Conditions **L 346**; Part II: Starved Conditions **L 353**
Shear Layers
Laminar Shear Layer Due to a Thin Flat Plate Oscillating With Zero Mean Velocity (78-WA/FE-16) **F 367**
Review—Self-Sustaining Oscillations of Flow Past Cavities **F 152**
Turbulence Characteristics of the Flow Downstream of a Symmetric, Plane Sudden Expansion **F 308**
Shear Loading
Stress Singularity at the Corner of a Wedge-Shaped Crack or Inclusion (78-WA/APM-6) **AM 791**
Shear Rapping
Response of Collecting Plates in Electrostatic Precipitators Due to Shear Rapping (77-DET-98) **MD 105**
Shear Stress
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P 676**; (D) **P 688-689**; (AC) **P 689**
Further Investigation of a New Hardening Law in Crystal Plasticity **AM 500**
Heat Transfer and Shear Stress on a Heated Cone (BN) **AM 952**
Peristaltic Pumping of a Newtonian Fluid With Particles Suspended in It at Low Reynolds Number Under Long Wavelength Approximations **AM 32**
Rational and Economical Multicomponent Seismic Design of Piping Systems (TB) **PVT 425**
Shear-Stress Formulas and the Shear Center for Curved Beams (BN) **AM 438**
Turbulence Measurements in a Separated and Reattached Flow Over a Blunt Flat Plate **F 224**
Variable Viscosity Effect on the Laminar Water Boundary Layer on Heated Cones **AM 481**
Shear Wave Speeds
Elastic Interface Waves and Sliding Between Two Solids **AM 325**
Shear Waves
Harmonic Wave Propagation in a Periodically Layered, Infinite Elastic Body: Antiplane Strain **AM 343**
Shear Zones
Correlation of Tempering Effects With Temperature Distribution in Steel Cutting Tools (77-WA/Prod-16) **I 131**
Sheet Metal Necking
On the Theories of Sheet Metal Necking and Forming Limits **MT 303**
Sheet Metal Stamping
Analysis of Sheet Metal Stamping by a Finite-Element Method **AM 73**
Shell Junction
Boundary Conditions at a Cone-Cylinder Shell Junction (BN) **AM 938**
Shell Pressure
Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) **P 380**; (D) (AC) **P 389**
Shell Theory
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) **MD 183**
Shells
Analysis of Elastic-Plastic Plates and Shells Under Cyclic Loading (78-PVP-11) **PVT 335**
Application of Stress Functions to Initial Stress Problems **AM 350**
Determination of Transient Responses of a Thick-Walled Spherical Shell by the Ray Theory **AM 114**
Dynamic Plastic Instabilities in Stretching Plates and Shells **AM 105**
Elastic and Elastic-Plastic Buckling of Internally Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) **PVT 335**
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) **I 249**
Modal Method for Free Vibration of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**
Pressurized Cylindrical Shell With a Rigid Circular Inclusion **PVT 158**
Snap-Buckling of Orthotropic Shallow Spherical Shells (BN) **AM 445**
Stress Concentration in a Stretched Cylindrical Shell With Two Elliptical Holes (78-WA/APM-18) **AM 839**
Stress-Intensity Factors for Arbitrarily Oriented Cracks in Shallow Shells **AM 135**
Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) **PVT 107**
Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) **MD 528**
Transient Response of Continuous Elastic Structures With Viscous Damping (78-WA/APM-5) **AM 877**
Shells of Revolution
Steady-State Motion of a Shell of Revolution in an Acoustic Medium (BN) **AM 447**
Transient Motion of an Elastic Shell of Revolution in an Acoustic Medium **AM 149**
Shieh, L. S. Some Sufficient and Some Necessary Conditions for the Stability of Multivariable Systems **DS 214**
Shield Wall
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) **MD 630**
Shih, C. D. Some Sufficient and Some Necessary Conditions for the Stability of Multivariable Systems **DS 214**
Shih, C. F. Further Developments in Anisotropic Plasticity **MT 294**
Shih, T. M. Laminar Mixed-Mode, Forced and Free, Diffusion Flames **HT 253**
Shima, A. The Behavior of Gas Bubbles in the Casson Fluid **AM 37**
Shimachi, S. The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) **MD 85**
Shimogo, T. Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) **MD 242**; Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) **MD 507**; Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) **MD 514**
Shimono, M. Deformation of Polymers During Hydrostatic Extrusion **PVT 400**
Shina, P. K. Magnetic Suspension for Low-Speed Vehicles **DS 333**
Shindo, Y. Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid With a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**
Shirakashi, T. Analytical Prediction of Three Dimensional Cutting Process—Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) **I 236**; The Conflicting Roles of Carbontetrachloride as a Boundary Lubricant (77-WA/Prod-7) **I 244**
Shirazi, M. A. Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**
Shitzer, A. Analytic Solutions to the Heat Equation Involving a Moving Boundary with Applications to the Change of Phase Problem (the Inverse Stefan Problem) **HT 300**; Analytical Solutions to the Problem of Transient Heat Transfer in Living Tissue **BE 202**
Shivaprasad, B. G. Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) **F 37**; (D) **F 45**; (AC) **F 46**
Shladover, S. E. Longitudinal Control of Automated Guideway Transit Vehicles Within Platoons **DS 302**; Steering Controller Design For Automated Guideway Transit Vehicles **DS 1**
Shock
Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) **MD 236**
Shock Asorbers
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) **MD 500**
Shock Pressures
Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**
Shock Resistance
Fracture Strength and Thermal Shock Resistance of Thick and Thin-Wall Magnesium-Aluminum-Silicate Ceramic Heat Regenerators (77-GT-98) **P 136**
Shock Tube Measurements
Shock Tube Measurements of Carbon Dioxide in the 2.7 Micron Region (Er) **HT 680**
Shock Waves
Calculations of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (76-WA/FE-31) **F 355**
Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**
Interaction of the Rotor Blade Shock Waves in Supersonic Compressors With Upstream Stator Vanes (77-GT-93) **P 140**
Short Cylinders
Buckling of Short Cylinders Under Combined Loading **AM 574**
Short Headway Automated Transit Systems
A State-Constrained Approach to Vehicle-Follower Control for Short Headway Automated Transit Systems **DS 291**
Shotter, B. A. Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 2: Experimental Investigation (D) (AC) **MD 404**
Shoukri, M. On the Influence of Surface Conditions in Nucleate Boiling—the Concept of Bubble Flux Density **HT 618**
Shoup, T. E. A Rapid Approximate Solution to Davydenko's Lift Mechanism Design Problem (TB) **I 110**
Shrivastava, S. K. A Comparative Study of Liapunov Stability Analyses of Flexible Damped Satellites **AM 657**
Shroud Segment Interfaces
An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) **MD 222**
Shrouded Blades
Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) **MD 520**
Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 660**
Shrouded Fin Arrays
Forced Convection Heat Transfer from a Shrouded Fin Array with and without Tip Clearance **HT 572**
Side-Surface Foldover
Disk and Strip Forging with Side-surface Foldover—Part 1: Velocity Field and Upper-Bound Analysis (77-WA/Prod-36) **I 421**; Part 2: Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) **I 428**
Side Walls
Influence of the Side Walls on the Turbulent Center-Plane Boundary-Layer in a Square Duct **F 91**
Sidebottom, O. M. Cyclic Plasticity for Nonproportional Paths: Part 1—Cyclic Hardening, Erasure of Memory, and Subsequent Strain Hardening Experiments (77-WA/Mat-12) **MT 96**; Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) **104**

Sidell, R. S. Canine Pulmonary Input Impedance Measured by Transient Forced Oscillations **BE 67**; Noninvasive Inference of Airway Network Geometry From Broadband Lung Reflection Data **BE 131**

Siegel, R. Shape of Two-Dimensional Solidification Interface During Directional Solidification by Continuous Casting **HT 3**

Sigg, H. Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) **MD 723**

Signer, H. R. Lubrication of High-Speed, Large Bore Tapered-Roller Bearings (77-Lub-13) **L 31**

Sih, G. C. *(editor)* Elastodynamic Crack Problems (BR) **AM 230**

Sikora, H. L. *(author)* Investigation of Rotary Actuation Technique (GR) **MD 206**

Silence, W. L. Effect of Structure on Wear Resistance of Co-, Fe-, and Ni- Base Alloys **L 428**

Sills, L. B. Postbuckling Ring Analysis (BN) **AM 208**

Siminski, V. J. Development of a Hybrid Catalytic Combustor **P 267**

Simitses, G. J. Divergence Buckling of a Simple Frame, Subject to a Follower Force (BN) **AM 426**

Simmonds, J. G. Stress-Intensity Factors for Arbitrarily Oriented Cracks in Shallow Shells **AM 135**

Simoneau, R. The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**

Simonich, J. C. Effect of Free-Stream Turbulence on Heat Transfer through a Turbulent Boundary Layer **HT 671**

Simple Frame
Divergence Buckling of a Simple Frame, Subject to a Follower Force (BN) **AM 426**

Simply Supported Ends
Modal Method for Free Vibration of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**

Simply Supported Plate
Observations on Numerical Modeling of an Obtuse Corner of a Simply Supported Plate (BN) **AM 689**

Simply Supported Square Corners
A Note on the Reaction at Simply Supported Square Corners (BN) **AM 217**

Simpson, R. L. The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (D) **F 15**; (AC) **F 16**; Tailoring the Waveform of a Periodic Flow With a Programmable Damper **F 287**

Simulation
Simulation of Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) **MD 26**

Singh, K. Use of Dynamic Absorbers to Control Parametric Instabilities of a Pipe (BN) **AM 949**

Singh, K. P. Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) **P 380**; (D) (AC) **P 389**

Single Pile Loading
Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) **MD 100**

Single-Point Tools
Analytical Prediction of Three Dimensional Cutting Process—Part 2: Chip Formation and Cutting Force with Conventional Single-Point Tool (77-WA/Prod-10) **I 229**; Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) **I 236**

Single Port Discharge
Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**

Singular Integral Equations
The Theory of Approximate Methods and Their Application to the Numerical Solution of Singular Integral Equations (BR) **AM 230**

Singular Reflection
Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**

Singular Surface
Reflection of Acceleration Waves in an Elastic-Plastic Medium **AM 51**

Sinha, P. K. Rail Passenger Vehicle Lateral Dynamic Performance Improvement Through Active Control **DS 270**

Sink Flow
Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**

Sintered Tungsten
Thermal Properties of Tungsten SRM'S 730 and 799 **HT 330**

Skalak, F. Fluid Dynamics of the Long Porous Slider (Er) **AM 236**

Skew-Axes Gears
The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) **MD 85**

Skew Worm-Gears
An Analysis of Undercut Conditions and of Appearance of Contact Lines Envelope Conditions of Gears (77-DET-2) **MD 423**

Skewed Boundary Layers
Measurements of Skewed Boundary Layers in a Curved Duct With Variation in Streamwise Pressure Gradient (TB) **F 124**

Skin Friction
Influence of the Side Walls on the Turbulent Center-Plane Boundary-Layer in a Square Duct **F 91**

Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow **F 215**; (D) (AC) **F 377**

Skull Pressure
Response of a Realistic Human Head-Neck Model to Impact **BE 25**

Slablike Bodies
Thermoelastic Effects in Frictionally Heated Line Contact of Slablike Bodies (77-Lub-21) **L 136**

Slabs
Combined Conductive and Radiative Heat Transfer in an Absorbing and Scattering Infinite Slab (77-HT-50) **HT 98**

Thermal Response of Slabs Subjected to Non-Symmetric Convective Heat Transfer (78-DE-8) **MD 706**

Transient Behavior of a Solid Sensible Heat Thermal Storage Exchanger **HT 148**

Transient Conduction in a Slab With Temperature Dependent Thermal Conductivity (TN) **HT 172**

Siegel, D. L. Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**

Sletten, R. Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) **I 249**

Slider Bearings
Asymptotic Methods for a General Finite Width Gas Slider Bearing **L 254**

Flow in Finite-Width, Thrust Bearings Including Inertial Effects: Part I—Laminar Flow **L 330**; Part II—Turbulent Flow **L 339**

Sliders
Fluid Dynamics of the Circular Porous Slider (Er) **AM 236**

Fluid Dynamics of the Long Porous Slider (Er) **AM 236**

The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) **L 219**; (D) **L 224**; (AC) **L 225**

Sliding
Methods of Decreasing Wear in Metal-Polymer Contacts **L 185**

Sliding Bearings
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) **L 167**; (D) (AC) **L 174**

Sliding Conditions
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) **MD 440**

Sliding Elastohydrodynamic Lubrication
Traction Behavior in Sliding ehl Contacts (77-Lub-5) **L 115**

Sliding Point Contacts
Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) **L 304**; (D) (AC) **L 307**

Sliding Power Collector
Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) **MD 242**

Sliding-Rolling Concentrated Contacts
Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) **L 121**

Sliding Solids
Elastic Interface Waves and Sliding Between Two Solids **AM 325**

Sliding Steel Cylinders
A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) **L 110**

Sliding Surfaces
The Conflicting Roles of Carbontetrachloride as a Boundary Lubricant (77-WA/Prod-7) **I 244**; Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) **MD 460**

Sliding Velocity
Strain Rate Effects in Low Speed Two-Body Abrasion **L 181**

A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) **MD 451**

Slip
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) **L 167**; (D) (AC) **L 174**

Measurement of Roller Speed in a Cylindrical Roller Bearing Using a Laser Anemometer **L 486**

Slip Boundary Conditions
Perturbation Solution of the 1-D Reynolds Equation With Slip Boundary Conditions **L 70**

Slip Factors
A Method of Calculating the Slip Factor of Centrifugal Compressors From Deviation Angle (77-GT-64) **P 121**

Slip Model
A Slip Model for Finite-Element Plasticity **AM 527**

Slip Systems
Further Investigation of a New Hardening Law in Crystal Plasticity **AM 500**

Slip Velocity
On the Flow Regimes of Downhole Flow of a Gas-Particle Mixture **F 410**

Slipping Speed
Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) **MD 433**

Small, N. C. Plastic Collapse of Oval Straight Tubes Under External Pressure (77-PVP-57) **PVT 46**

Smalley, A. J. The Dynamic Characteristics of O-Ring (77-DET-27) **MD 132**

Smith, A. M. Combined Conductive and Radiative Heat Transfer in an Absorbing and Scattering Infinite Slab (77-HT-50) **HT 98**

Smith, C. C. Identification of the Dynamic Characteristics of a Bench-Type Automotive Seat for the Evaluation of Ride Quality **DS 42**; The Prediction of Passenger Riding Comfort From Acceleration Data (77-WA/Aut-6) **DS 34**

Smith, C. R. Transitory Stall Time-Scales for Plane-Wall Air Diffusers (TB) **F 133**

Smith, C. W. Stress Intensity Factors for Reactor Vessel Nozzle Cracks **PVT 141**

Smith, F. W. Quarter Elliptical Cracks Emanating From Holes in Plates **MT 144**

Smith, N. E. Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) **I 273**

Smith, R. E., Jr. A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (D) (AC) **P 697**

Smith, T. N. Forced Convection Heat Transfer from Nonisothermal Thin Needles **HT 358**

Smith, W. D. The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) **MD 574**

Smoke Radiation
Infrared Mean Absorption Coefficients of Luminous Flames and Smoke **HT 235**

Smooth Walls
Experimental Heat Transfer Behavior of a Turbulent Boundary Layer on a Rough Surface With Blowing **HT 134**

Snap-Buckling
The Effect of Spatial Distribution on Dynamic Snap-Through **AM 612**

Optimal Shape of Shallow Circular Arches Against Snap-Buckling **AM 591**

Snap-Buckling of Orthotropic Shallow Spherical Shells (BN) **AM 445**

Snarsky, L. Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) **L 167**; (D) (AC) **L 174**

Snider, A. D. An Efficient Algorithm for Evaluating Arrays of Extended Surface **HT 288**

Snow Skiing
Analysis of Leg Loading in Snow Skiing **DS 177**

Snyder, T. K. An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**

So, R. M. C. The Dynamics of Thin Liquid Films in Rotating Tubes: Approximate Analysis **F 187**; Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (D) **F 375**; (AC) **F 376**; On Vortex Wind Power (77-WA/FE-20) **F 79**

Sod, G. A. *(reviewer)* Numerical Analysis of Spectral Methods: Theory and Application (BR) **AM 969**

Soda, N. Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear **L 492**; (D) (AC) **L 499**

Sodium-Heated Helical Coil
Determination of Void Fraction, Incipient Point of Boiling, and Initial Point of Net Vapor Generation in Sodium-Heated Helically Coiled Steam Generator Tubes **HT 268**

Sodium-Water Reaction Testing
Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) **P 347**

Soeda, T. A Technique for Compensating the Filter Performance by a Fictitious Noise **DS 154**

Soehrens, J. E. Design Curves for Stress Analysis of U-Tube Heat Exchanger Tubesheet With Integral Channel and Head **PVT 221**

Soft Body Tissues
Deformations and Stresses in Soft Body Tissues of a Sitting Person **BE 79**

Soft Ferromagnetic Elastic Solid
Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid With a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**

Soft Tissue
In-Vivo Mechanical Properties of Soft Tissue Covering Bony Prominences **BE 194**

Softening Filter
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) **DS 50**

Soil Mechanics
Applications of the Theory of Plasticity in Soil Mechanics (BR) **AM 705**

Soil and Structural Systems
Uniqueness of Damping and Stiffness Distrubutions in the Identification of Soil and Structural Systems **AM 181**

Soils
Pile Foundations in Frozen Soils (77-Pet-79) **PVT 302**

Sokolov, M. Carathéodory Controllability Criterion for Nonlinear Dynamical Systems **DS 209**; Transition Behavior of a Blasius-Type Boundary Layer Subjected to Uniform Blowing or Suction (BN) **AM 450**

Soland, J. G. Performance Ranking of Plate-Fin Heat Exchanger Surfaces (76-WA/HT-31) **HT 514**

Solar Collector
Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) **P 497**

Solar Concentrators
Performance Analysis of a Pancake Absorber-Helical Heat Exchanger for a Solar Concentrator **P 178**

Solar Selective Surfaces
Evaluation of Portable Optical Property Measurement Equipment for Solar Selective Surfaces (77-WA/Sol-1) **P 489**

Solenoid Actuator
A Development Program to Determine the Feasibility of Using a Compact, Efficient Solenoid as an Actuator for Driving a Blood Pump **MD 206**

Soler, A. I. Design Curves for Stress Analysis of U-Tube Heat Exchanger Tubesheet With Integral Channel and Head **PVT 221**; Load-Deformation Behavior of Elastic Beam-Columns of Yielding Foundations **P 182**; The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) **P 363**

Solid-Gas Jet
Experimental Study of a Solid-Gas Jet Issuing Into a Transverse Stream (78-WA/FE-2) **F 333**; (D) **F 338**; (AC) **F 339**

Solid Materials
Strength and Structure of Solid Materials (BR) **AM 231**

Solid Mechanics
Theory and Practice of Solid Mechanics (BR) **AM 229**

Solid Surface
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) **I 43**

Solid Surface Lubricant
Effect of Solid Surface Lubricant Interaction on the Load Carrying Capacity of Sliding Bearings (77-Lub-27) **L 167**; (D) (AC) **L 174**

Solidification Interface
Shape of Two-Dimensional Solidification Interface During Directional Solidification by Continuous Casting **HT 3**

Solids
On the Analogy Between the Calorimeter Problem and Some Granulate-Fluid Exchange Processes **HT 319**
Analysis of Branched Cracks **AM 797**
Experiments on the Role of Natural Convection in the Melting of Solids **HT 11**
On Rigid Elliptic Inclusions in Orthotropic Solids (BN) **AM 883**
Sound Waves in Solids (BR) **AM 967**
Stress Waves in Nonelastic Solids (BR) **AM 970**
Theoretical and Experimental Investigation of Continuous Jet Penetration of Solids (77-WA/Prod-38) **I 88**
Three-Dimensional Wave Propagation in a Cracked Elastic Solid **AM 807**

Someya, K. Experimental and Theoretical Study on Magnetoelastic Buckling of a Ferromagnetic Cantilevered Beam-Plate **AM 355**

Sonic Velocity
Exact and Approximate Equations for Real-Fluid Isentropic Flow **F 413**

Sonin, A. A. Experimental Tests of the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 605**; On the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 601**

Soot-Gas Mixtures
Infrared Mean Absorption Coefficients of Luminous Flames and Smoke **HT 235**

Sorenson, J. E. Propagating Buckle Arrestors for Offshore Pipelines **PVT 206**

Sound Design Systems
A Strategy for the Optimum Design of Acoustic Space (77-DET-44) **MD 411**

Sound Speed
Low Frequency Bloch Waves Equations Whose Speed Is a Deterministic, or Randomlike, Periodic Function **AM 331**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) **L 418**

Sound Waves
Sound Waves in Solids (BR) **AM 967**

Soundalgekar, V. M. Free Convection Effects on Stokes' Problem for a Vertical Plate in Rarefied Gas-Medium (BN) **AM 697**

Space Shuttle Main Engine
The Space Shuttle Main Engine High-Pressure Fuel Turbopump Rotordynamic Instability Problem (77-GT-49) **P 48**

Spacecraft
A Comparative Study of Liapunov Stability Analyses of Flexible Damped Satellites **AM 657**

Spaced Sliders
The Frictional Dynamics of Lubricated Elastomers in Contact With Regularly Spaced Sliders (77-Lub-34) **L 219**; (D) **L 224**; (AC) **L 225**

Spacing Errors
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) **MD 715**

Spamer, T. Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) **MT 57**

Spanos, P.-T. Response Envelope Statistics for Nonlinear Oscillators With Random Excitation **AM 170**

Sparrow, E. M. Development of Wall and Free Plumes Above a Heated Vertical Plate **HT 184**; Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube (Er) **HT 367**; Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**; Effect of Subcooling on Cylindrical Melting **HT 395**; Experiments on the Role of Natural Convection in the Melting of Solids **HT 11**; Forced Convection Heat Transfer from a Shrouded Fin Array with and without Tip Clearance **HT 572**; Melting and Natural Convection Due to a Vertical Embedded Heater (TN) **HT 368**; Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**; Turbulent Heat Transfer Downstream of an Unsymmetric Blockage in a Tube **HT 588**

Spatial Control
A Control Algorithm For Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**

Spatial Distribution
The Effect of Spatial Distribution on Dynamic Snap-Through **AM 612**
Spatial Distribution of Active Sites and Bubble Flux Density **HT 56**
Wide-Band Random Vibration of Circular Plates (77-DET-97) **MD 690**

Spatial Linkages
Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) **MD 732**

Spatial Mechanisms
Instantaneous Invariants in Three-Dimensional Kinematics **AM 409**

Spectral Absorption Coefficient
Multi-Dimensional Radiative Transfer in Nongray Gases—General Formulation and the Bulk Radiative Exchange Approximation (77-HT-51) **HT 486**

Spectral Analysis
Identification of the Dynamic Characteristics of a Bench-Type Automotive Seat for the Evaluation of Ride Quality **DS 42**

Spectral Density
Interferometric Investigation of Turbulently Fluctuating Temperature in an LMFBR Outlet Plenum Geometry (76-WA/HT-82) **HT 334**
Power Spectral Density for Constrained Long Wavelength Guideway Irregularities (77-WA/Aut-13) **DS 18**
Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**

Spectral Expansions
Partial Spectral Expansions for Problems in Thermal Convection **HT 435**

Spectral Frequencies
Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**

Spectral Inputs
Normal Mode Solution of Fluid-Coupled Concentric Cylindrical Vessels (77-PVP-37) **PVT 350**

Spectral Methods
Numerical Analysis of Spectral Methods: Theory and Application (BR) **AM 969**

Spectral Modeling
Accurate Spectral Modeling for Infrared Radiation (77-HT-69) **HT 240**

Spectrum Crack Growth
Spectrum Crack Growth in Adhesively Bonded Structure (77-WA/Mat-7) **MT 57**

Speed Flow
A Note on the Low Speed Flow Up a Step (TB) **F 127**

Speed Parameters
Elastohydrodynamic Lubrication of Elliptical Contacts for Materials of Low Elastic Modulus I—Fully Flooded Conjunction (77-Lub-10) **L 236**; (D) (AC) **L 245**

Speed Ranges
An Elastic Strip Pressed Against an Elastic Half Plane by a Steadily Moving Force **AM 89**
A Parametric Study to Relate Speed to Permissible Combinations of Track Geometry Deviations **DS 252**
Rail Passenger Vehicle Lateral Dynamic Performance Improvement Through Active Control **DS 270**
Stability of a Vehicle on a Multispan Simply Supported Guideway **DS 326**

Sphere Probe
A Yaw-Insensitive Static Pressure Probe **F 229**

Spheres
Approximate Radiation Shape Factors between Two Spheres (TN) **HT 547**
On the Exact Solution for the Two-Sphere Problem in Axisymmetrical Potential Flow **AM 463**
Frictional Moment of Flow Between Two Concentric Spheres, One of Which Rotates **F 97**
Inner Radius Expansion of a Cylinder or a Sphere Under Cold Working (BN) **AM 198**
Mixed Convection about a Sphere with Uniform Surface Heat Flux (TN) **HT 542**
Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) **F 17**; (D) **F 247**; (AC) **F 248**

Spherical Annulus
Laminar-Turbulent Flow in a Spherical Annulus **F 281**

Spherical Bubble Growth
Magnetic Field Effects on Bubble Growth in Boiling Liquid Metals **HT 466**
Three-Dimensional Elasticity Solution and Edge Effects in a Spherical Dome (D) **AM 700**; (AC) **AM 701**

Spherical Drop
Liquid-Solid Impact Calculations With Triangular Elements (D) **F 255**; (AC) **F 256**

Spherical Indentation
Spherical Indentation of Nonhomogeneous Materials (BN) **AM 944**

Spherical Nonlinear Membrane
On the Contact Problem of a Highly Inflated Spherical Nonlinear Membrane (BN) **AM 202**

Spherical Particles
Motion of a Large Dusty Buoyant Thermal With a Vortex

Ring (78-WA/APM-8) **AM 711**

Spherical Pressure Hulls
Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) **I 261**; (D) **I 271**; (AC) **I 272**

Spherical Shells
The Dynamic Analysis of Ehallow Spherical Shells (BN) **AM 690**
Snap-Buckling of Orthotropic Shallow Spherical Shells (BN) **AM 442**

Spherical Vapor Bubble
Bubble Growth in Variable Pressure Fields **HT 453**

Spindles
One Stage and Two Stage Vibration Isolators as Applied to High Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) **MD 33**

Spinning
The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) **I 13**

Spinning Bodies
Laminar Boundary Layer Transfer over Rotating Bodies in Forced Flow **HT 496**

Spinning Disk
Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**

Spinning Frame
Calculation of Peak Yarn Tension During Ring-Spinning (77-Tex-6) **I 167**

Spinodal Line
Corresponding States Correlations of the Extreme Liquid Superheat and Vapor Subcooling (77-HT-20) **HT 492**

Spiral Bevel Gears
Lattice Contact In Generated Spiral Bevel Gears (77-DET-63) **MD 42**

Spitze, L. A. The Preparation of Calcium Superoxide at Subambient Temperatures and Pressures (77-ENAs-55) **I 26**

Splitter Plate
Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**

Spray Cooling Systems
Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) **F 65**

Spray Flame
Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) **I 210**

Spray Velocity
Fuel Spray Trajectory in Diesel Engines (77-DGP-1) **P 326**

Sprays
An Investigation of the Influence of Back Pressure on the Diffusion of Mass and Momentum of Fuel in Diesel Spray **P 241**
Inviscid Rotational Flow Through Sprays (BN) **AM 934**

Spring Characteristics
On the Nonlinear Response of a Relief Valve (77-DET-81) **MD 675**

Spring Constant Determination
Load Distribution in Timing Belts (77-DET-100) **MD 208**

Spring Dampers
Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**

Spring Energy Conservation
A Computer-Aided Feel Cam Design (TB) **MD 604**

Spring Force
Control of Clearance Effects in Mechanisms (77-WA/DE-2) **MD 728**

Springs
Saint-Venant's Principle for a Helical Spring **AM 297**

Sproule, R. S. Power System Economics: On Selection of Engineering Alternatives (D) **P 344**; (AC) **P 345**

Spur Gear Teeth
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) **MD 374**

Spur Gears
Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) **MD 69**
The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) **MD 417**
The Efficiency of Gears in Consideration of Gear Size and Skewness of Gear Axes (77-DET-65) **MD 85**
Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) **MD 54**
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) **MD 77**
Study of Lubricant Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (77-DET-104) **MD 61**; (D) **MD 68**; (AC) **MD 68**

Square Duct
Influence of the Side Walls on the Turbulene Center-Plane Boundary-Layer in a Square Duct **F 91**

Square Plates
Collocation Solution for Point-Supported Square Plates (BN) **AM 424**

Square Prism
Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**

Squeeze Film Bearing
An Investigation into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) **L 56**

Squeeze Film Bearing Damper
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forces Induced by Offset Circular Whirl Orbits (77-DET-25) **MD 549**
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) **P 647**

Squeeze Film Dampers
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) **MD 558**
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) **L 369**; (D) (AC) **L 377**
An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) **MD 216**
Investigation of Squeeze Film Damper Forces Produced by Circular Centered Orbits (77-GT-30) **P 15**
Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) **MD 139**

Squeeze Film Damping
Steady-State Unbalance Response of a Three-Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) **MD 563**

Squeeze Film Flow
Squeeze Film Flow Between Arbitrary Two-Dimensional Surfaces Subject to Normal Oscillations **L 316**
Squeeze Film Flow in Arbitrarily Shaped Journal Bearings Subject to Oscillations **L 323**

Sridhar, K. Developing Region of Laminar Jets With Uniform Exit Velocity Profiles **F 55**; Solutions of Laminar Jet Flow Problems for Non-Newtonian Power Law Fluids (D) (AC) **F 500**

Sridharan, K. Loss Characteristics of Orifices and Nozzles **F 299**

Srinivasan, A. V. Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) **MD 529**

Srinivasan, K. Analysis and Design of Machine Tool Chatter Control Systems Using the Regeneration Spectrum **DS 191**; Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) **I 332**; (D) (AC) **I 339**; Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) **I 323**

Srivatsavan, R. A Cumulative Damage Rule Based on Successive Reduction in Fatigue Limit (TB) **MT 212**

St. Hilaire, A. O. Experimentally Determined Stability Parameters of a Subsonic Cascade Oscillating Near Stall (77-GT-47) **P 111**

St.-Jacques, R. G. Helium Blistering in Metals (78-Mat-5) **MT 411**

Stability
Air Model Tests of Labyrinth Seal Forces on a Whirling Rotor **P 533**
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) **MD 558**
Application of The Parameter Plane Method to The Analysis of Directional Stability of Tractor-Semitrailers **DS 9**
An Assessment of Overburden Stability in the In-Situ Gasification of Texas Lignite **PVT 285**
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) **I 137**
Axial Impact Buckling of a Column With Random Initial Imperfections **AM 361**
Buckling of Short Cylinders Under Combined Loading **AM 574**
Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 1—Implementation **AM 595**
Critical Speeds, Stability and Response of a Geared Train of Rotors (77-DET-30) **MD 535**; (D) **MD 538**; (AC) **MD 539**
Developments in Nonlinear Controller Synthesis: An Overview **DS 59**
Effects of Jerk Limiting on the Stability of Automated Transit Vehicles **DS 298**
Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**
Finite-Element Methods for Nonlinear Elastodynamics Which Conserve Energy **AM 366**
Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**
Fluid Dynamic Excitation of Centrifugal Compressor Rotor Vibrations (77-FE-22) **F 73**
High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) **I 49**
Hydrodynamic Stability in Horizontal Fluid Layers with Uniform Volumetric Energy Sources (TN) **HT 729**
Implicit-Explicit Finite Elements in Transient Analysis: Stability Theory **AM 371**
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) **MD 328**
Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/Prod-41) **I 323**
Laminar-Turbulent Flow in a Spherical Annulus **F 281**
Longitudinal Control of Automated Guideway Transit Vehicles Within Platoons **DS 302**
Magnetic Suspension for Low-Speed Vehicles **D 333**
Nonaxisymmetric Incompressible Hydrostatic Pressure Effects in Radial Face Seals (77-Lub-29) **L 379**; (D) (AC) **L 384**
Nonparallel Effects on the Stability of Jet Flows (78-WA/APM-16) **AM 717**
A Note on the Stability of a Gyrostat With a Fixed Point (BN) **AM 676**
Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**
Optimum Bearing and Support Damping for Unbalance Response and Stability of Rotating Machinery (77-GT-27) **P 89**
Optimum Design of Bridge Girders for Electric Overhead Traveling Cranes (76-WA/DE-28) **I 375**
Pipes Supported at Both Ends Cannot Flutter **AM 619**
Point Mapping Stability (BR) **AM 456**
A Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) **MD 470**
Rules and Methods of Stress and Stability Calculations in the Presence of Creep (DDM) **AM 669**
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) **L 395**
Stabilität und Matrizen (in German) (BR) **AM 704**
Stability of a Cluster of Flexible Cylinders in Bounded Axial Flow (AC) **AM 703**
Stability of a Nonlinear Rectangular Plate **AM 583**
Stability of Polar-Orthotropic Sector Plates (BN) **AM 448**
Stability of a Rectangular Simply Supported Plate Subjected to Nonincreasing Tangential Follower Forces (BN) **AM 223**
Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) **MD 507**
Stability Tests for One, Two, and Multidimensional Linear Systems **DS 105**
Stability of a Vehicle on a Multispan Simply Supported Guideway **DS 326**
A Study of the Stability of an Externally-Pressurized Gas-Lubricated Thrust Bearing With a Flexible Damped Support **L 364**
Sufficient Conditions for Stability of Rotating Flows **AM 7**
On the Symmetry and Stability of Thermoelastic Solids **AM 740**
Transient Free Convection from a Suddenly Heated Horizontal Wire **HT 423**
On the Uniqueness and Stability of Endochronic Theories of Material Behavior **AM 263**
Wave Motion in Multilayered Liquid Films **AM 25**

Stability Analyses
Analysis and Design of Machine Tool Chatter Control Systems Using the Regeneration Spectrum **DS 191**
Bifurcations in Dynamical Systems With Internal Resonance (78-WA/APM-12) **AM 895**
A Comparative Study of Liapunov Stability Analyses of Flexible Damped Satellites **AM 657**
Deterministic Stability Analysis of a Wind Loaded Structure **AM 165**
Linearized Stability Analysis of Film Condensation **HT 629**
A Simple Stability Analysis for Flexible Rotors in Tilting Pad

Bearings (77-DET-22) **MD 165**

Stability Conditions
Some Sufficient and Some Necessary Conditions for the Stability of Multivariable Systems **DS 214**

Stability Parameters
Experimentally Determined Stability Parameters of a Subsonic Cascade Oscillating Near Stall (77-GT-47) **P 111**

Stabilized Platform
A Note on the Active Compensation of a Flexibly Mounted Stabilized Platform (TB) **DS 92**

Stachiw, J. D. Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) **I 249**; Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) **I 261**; (D) **I 271**; (AC) **I 272**; Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearings Surfaces (77-WA/Oce-3) **I 273**

Stage Pressure Ratios
Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy **P 525**

Stage Stacking Technique
A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) **P 698**

Stagnation Density
Exact and Approximate Equations for Real-Fluid Isentropic Flow **F 413**

Stainless Steel Beams
Elastic-Plastic Response of 304 Stainless Steel Beams to Impulse Loads (BN) **AM 685**

Stainless Steel Bellows
Design of U-Shaped Bellows Considering Low-Cycle Fatigue **PVT 382**

Stainless Steel Weldments
On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) **MT 319**

Stainless Steels
Constitutive Modeling of Elevated Temperature Stress Relaxation in Austenitic Stainless Steels (TB) **MT 221**
An Experimental Study of Progressive Strain Growth Due to Thermal-Stress Ratcheting **MT 150**
An Investigation of the Minimum Film Boiling Temperature on Horizontal Surfaces **HT 260**
Irradiation Effects on the Behavior of Structural Materials at Elevated Temperature **MT 121**
The Wear of High Molecular Weight Polyethylene—Part I: The Wear of Isotropic Polyethylene Against Dry Stainless Steel in Unidirectional Motion **L 208**

Stall
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**
Experimentally Determined Stability Parameters of a Subsonic Cascade Oscillating Near Stall (77-GT-47) **P 111**

Stall Condition
A New Stage Stacking Technique for Axial-Flow Compressor Performance Prediction (78-GT-139) **P 698**

Stall Time-Scales
Transitory Stall Time-Scales for Plane-Wall Air Diffusers (TB) **F 133**

Stalled Cascade
Torsional Flutter in Stalled Cascade **P 317**

Stalled Flows
A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages **F 180**; (D) (AC) **F 376**

Stalling Conditions
An Experimental Study of Three-Dimensional Characteristics of Propeller Wakes Under Stalling Conditions (D) **F 141**; (AC) **F 142**

Stalling Flow
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) **P 592**; (D) **P 601-602**; (AC) **P 602**

Stamping Design Process
Analysis of Sheet Metal Stamping by a Finite-Element Method **AM 73**

Stancampiano, P. A. Mechanical Reliability Confidence Limits (D) (AC) **MD 613**

Staph, H. E. Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) **L 121**

Starvation Results
Isothermal Elastohydrodynamic Lubrication of Point Contacts: Part IV-Starvation Results (D) (AC) **L 142**

Starved Rolling Traction
An Approximate Equation for Predicting the Isothermal and Nonisothermal Starved Rolling Traction in an E.H.L. Line Contact **L 472**

State Variable Interpretation
A State Variable Interpretation of Some Rate-Dependent Inelastic Properties of Steel **MT 395**

Static Deflection
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**

Static Loading
Application of the R-Curve Concept to Fatigue Crack Growth **MT 416**

Static Loads
Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) **MT 381**
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) **L 369**; (A (AC) **L 377**

Static Performance Optimization
Development of Gas Turbine Performance Seeking Logic (78-GT-13) **P 571**; (D) (AC) **P 575**

Static Pressure
Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**
Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**
On the Growth of Steam Droplets Formed in a Laval Nozzle Using Both Static Pressure and Light Scattering Measurements **F 311**; (Er) **F 499**
A Novel Pressure Transducer Using Mechanical Resonance **DS 83**

Static Pressure Distortion
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) **P 618**

Static Pressure Field
Nonaxisymmetric Flow through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**

Static Pressure Probe
A Yaw-Insensitive Static Pressure Probe **F 229**

Static Pressure Tap
Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) **F 265**; (D) **F 274**; (AC) **F 275**

Static Response
The Riccati Transfer Matrix Method (77-DET-32) **MD 297**

Static Rigidity
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) **I 137**

Station Flywheel Storage
Optimal Control of On-Board and Station Flywheel Storage for Rail Transit Systems **DS 284**

Stationary Random Excitation
The Response of an Oscillator With Bilinear Hysteresis to Stationary Random Excitation **AM 923**

Stationary Response
Stationary Response of a Randomly Parametric Excited Nonlinear System (78-WA/APM-13) **AM 910**

Stationary Transverse Load
Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**

Statistical Parameter
Model Verification of Mixed Dynamic Systems (77-DET-85) **MD 266**

Statistical Vibration Analysis
Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) **MD 229**

Stator Blade
Boundary-Layer Development on an Axial-Flow Compressor Stator Blade (77-GT-11) **P 287**; (D) **P 292**; (AC) **P 293**

Stator Vanes
Interaction of the Rotor Blade Shock Waves in Supersonic Compressors With Upstream Stator Vanes (77-GT-93) **P 140**

Steady Flow
Steady Flow in Tubes of Slowly Varying Cross Section **AM 475**
A Partially Cavitating Hydrofoil of Finite Span **F 353**

Steady Flow Availability Function
Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**

Steady-State Conditions
Transient Free Convection from a Suddenly Heated Horizontal Wire **HT 423**

Steady-State Conduction
The Heat Balance Integral in Steady-State Conduction (D) (AC) **HT 581**

Steady-State Crack Propagation
Influence of Rotatory Inertia on Steady-State Crack Propagation in a Finite Plate Subjected to Out-of-Plane Bending **AM 130**

Steady-State Motion
Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) **MD 480**
Steady-State Motion of a Shell of Revolution in an Acoustic Medium (BN) **AM 447**

Steady-State Response
An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) **MD 216**
Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) **MD 540**
Simulation in Resonances and Instability Conditions in Pinion-Gear Systems (77-DET-50) **MD 26**
Stability of a Vehicle on a Multispan Simply Supported Guideway **DS 326**
The Steady State Response of Systems With Hardening Hysteresis (77-DET-71) **MD 193**

Steady-State Solution
Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-69) **PVT 179**

Steady State Temperature
Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/Prod-22) **I 119**

Steady-State Unbalance Response
Steady-State Unbalance Response of a Three-Disk Flexible Rotor on Flexible, Damped Supports (77-DET-102) **MD 563**

Steady-State Vibration
Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structures (77-DET-84) **MD 279**
Nonlinear Material Damping for Nonsinusoidal Strain **AM 883**

Steam
Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**

Steam Bottoming Plants
Steam Bottoming Plants for Combined Cycles **P 203**

Steam Droplets
On Growth of Steam Droplets Formed in a Laval Nozzle Using Both Static Pressure and Light Scattering Measurements **F 311**; (Er) **F 499**

Steam Function Equation
Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**

Steam Generator Tubes
Determination of Void Fraction, Incipient Point of Boiling, and Initial Point of Net Vapor Generation in Sodium-Heated Helically Coiled Steam Generator Tubes **HT 268**
Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**

Steam Generators
Fuel Controller Design in a Once-Through Subcritical Steam Generator System **P 189**
Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) **P 347**
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) **PVT 107**

Steam Industries
A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) **P 511**

Steam Turbines
The Influence of Droplet Size on the Turbine Blading Erosion Hazard **P 561**
Moisture Measurements in a Low Pressure Steam Turbine Using a Laser Light Scattering Probe **P 544**
Throughflow Calculations for Transonic Axial Flow Turbines **P 212**

Steam Venting Noise Control
Control of Steam Venting Noise in Power Plants (77-IPC-Pwr-1) **P 369**

Steam-Water Flow
Calculations of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (76-WA/FE-31) **F 355**

Steam Whirl
Flow Excited Vibrations in High-Pressure Turbines (Steam Whirl) **P 219**

Steel Cutting Tools
Correlation of Tempering Effects With Temperature Distribution in Steel Cutting Tools (77-WA/Prod-16) **I 131**

Steel Cylinders
A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) **L 110**

Steel Forgings
Factors Affecting the Notch Toughness of Carbon and Low-Alloy Steel Forgings for Pressure Vessel and Piping Applications (78-Mat-2) **MT 338**
Steel Gears
A Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) **MD 470**
Steel Plates
Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) **PVT 77**
Steel Scarf Joint
Failure Analysis of an Adhesively Bonded Graphite Composite/Steel Scarf Joint (77-WA/Mat-11) **MT 64**
Steel Spur Gears
Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) **MD 54**
Steel Tools
On a Diffusion Wear Model for High Speed Steel Tools **L 436**
Steels
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) **MD 440**
Comparison of Dynamic Tear and Charpy-V-Notch Impact Properties of Plate Steels **MT 204**
Concerning a Creep Surface Derived From a Multiple Integral Representation for 304 Stainless Steel Under Combined Tension and Torsion (78-WA/APM-11) **AM 773**
Constitutive Modeling of Elevated Temperature Stress Relaxation in Austenitic Stainless Steels (TB) **MT 221**
Cryogenic Tensile, Fatigue, and Fracture Parameters for a Solution-Annealed 18 Percent Nickel Maraging Steel **MT 189**
The Determination of the J-Integral on Precracked Charpy Specimens by Instrumented Impact Testing and Slow-Bend Testing (78-Mat-10) **MT 253**
Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**
The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) **MD 417**
The Effect of Plastic Strain Followed by Aging on the Torsion Fatigue Resistance of Quenched and Tempered 4340 Steel (TB) **MT 219**
MPC-6 "Effects of Melting and Processing Variables on Mechanical Properties of Steel" Properties of Extra Low Sulfur Engineering and Die Steel (D) (AC) **MT 223**
An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) **MD 614**
Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) **MD 54**
On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**
High Temperature Properties and Constitutive Equations for 1 Cr-½ Mo Steel (77-PVP-50) **PVT 246**
Hydrogen Gas Generation in Water Heat Pipes **MT 313**
Influence of Selenium and Tellurium on the Fatigue of Low-Carbon Steel (TB) **MT 216**
J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) **MT 248**
J-Integral Approach to Fracture of Rotating Disk **MT 128**
Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) **L 226**; (D) **L 232, 233**; (AC) **L 234**
Shear Fracture Propagation by DCB Testing (77-Pet-33) **PVT 18**
A State Variable Interpretation of Some Rate-Dependent Inelastic Properties of Steel **MT 395**
Thermal Stresses in a Submerged-Arc Welded Joint Considering Phase Transformations **MT 356**
Tool Life Distributions—Part 4: Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) **I 201**
The Wear of High Molecular Weight Polyethylene—Part I: The Wear of Isotropic Polyethylene Against Dry Stainless Steel in Unidirectional Motion **L 208**
Steering Controller Design
Steering Controller Design For Automated Guideway Transit Vehicles **DS 1**
Stein, G. D. On the Growth of Steam Droplets Formed in a Laval Nozzle Using Both Static Pressure and Light Scattering Measurements **F 311**; (Er) **F 499**
Stein, R. A Portable Personal Cooling System for Mine Rescue Operations (77-ENAs-53) **I 53**; The Preparation of Calcium Superoxide at Subambient Temperatures and Pressures (77-ENAs-55) **I 26**
Stenasson, G. Load Distribution in Timing Belts (77-DET-100) **MD 208**
Stephen, N. G. On the Variation of Timoshenko's Shear Coefficient With Frequency (BN) **AM 695**
Steps
A Note on the Low Speed Flow Up a Step (TB) **F 127**
Stewart, J. T. Considerations When Converting Industrial Plants to Coal Firing (77-IPC-Fu-1) **P 374**
Stewart, R. M. Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) **MD 229**
Stiffness
Analysis of Dynamic Tilt Stiffness and Damping Coefficients of Externally Pressurized Porous Gas Journal Bearings **L 359**
Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**
Dynamic Characteristic of Multirecess Externally Pressurized Oil Journal Bearing **L 467**
Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 660**
Effect of Stress-Free Edges in Plane Shear of a Rectangular Orthotropic Region **AM 307**
Influence of Unequal Pedestal Stiffness on the Instability Regions of a Rotating Asymmetric Shaft **AM 400**
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) **MD 500**
Optimization of Rail Vehicle Operating Speed With Practical Constraints (78-WA/DSC-28) **DS 260**
Ride Quality of Autorack Cars (77-WA/RT-7) **I 171**
Transient Response of a Rotor in Damped Bearings (77-DET-21) **MD 257**
Stiffness Characteristics
The Dynamic Characteristics of O-Ring (77-DET-27) **MD 132**
Stiffness Coefficients
Stiffness Coefficients and Allowable Loads for Nozzles in Flat-Bottom Storage Tanks (77-PVP-19) **PVT 389**
Stiffness Distributions
Uniqueness of Damping and Stiffness Distributions in the Identification of Soil and Structural Systems **AM 181**
Stochastic Excitation
Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) **MD 681**
Response of a Multidegree-of-Freedom System to Nonstationary Random Excitation **AM 649**
Stochastic Models
A New Cumulative Damage Model: Part I **AM 246**; Part 3 (78-WA/APM-19) **AM 733**
Stochastic Nonlinear Equation
Stability of a Nonlinear Rectangular Plate **AM 583**
Stochastic Tool Life
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/Prod-33) **I 318**
Stockton, T. R. *(author)* FORD/ERDA Continuously Variable Transmission. Phase I. Transmission Design. Progress Report No. 9, January 1-March 31, 1976 (GR) **MD 203**
Stokes, V. K. On the Dynamic Expansion of a Circular Hole in an Infinite Plate of Rate-Sensitive Plastic Material **AM 67**
Stokes Flow
Stokes Flow Due to Circular Scraping (BN) **AM 956**
Stokes' Problem
Free Convection Effects on Stokes' Problem for a Vertical Plate in Rarefied Gas-Medium (BN) **AM 697**
Stokes, V. K. A Comparison of Deformation and Flow Theories Under Dynamic Loading Conditions (BN) **AM 431**; The Dynamic Hole Expansion Problem for a Plate of Elastic-Perfectly Plastic Material (BN) **AM 961**; On the Flow Regimes of Downhole Flow of a Gas-Particle Mixture **F 410**
Stokey, W. F. Normal Mode Solution of Fluid-Coupled Concentric Cylindrical Vessels (77-PVP-37) **PVT 350**
Stonesifer, R. W. A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**
Storage Exchanger
Transient Behavior of a Solid Sensible Heat Thermal Storage Exchanger **HT 148**
Storage System Control Concepts
Optimal Control of On-Board and Station Flywheel Storage for Rail Transit Systems **DS 284**
Storage Systems
A Parametric Study of Hot Water Storage for Peak Power Generation **P 229**
Storage Tanks
Stiffness Coefficients and Allowable Loads for Nozzles in Flat-Bottom Storage Tanks (77-PVP-19) **PVT 389**
Thermocline Degradation in a Packed Bed Thermal Storage Tank (TN) **HT 371**
Storakers, B. A State Variable Interpretation of Some Rate-Dependent Inelastic Properties of Steel **MT 395**
Stored Response
Stored Response Modeling **DS 132**
Stouffer, D. C. An Analysis of High Temperature Metal Creep—Part I: Experimental Definition of an Alloy **MT 363**; Part II: A Constitutive Formulation and Verification **MT 371**
Straight-Air Disk Brakes
Straight-Air Disk Brake Systems for Heavy Vehicles (77-DE-23) **MD 113**
Straight Blades
Vortex Sheet Analysis of the Giromill **F 340**
Straight Channel
Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (TN) **HT 539**
Straight Tubes
Plastic Collapse of Oval Straight Tubes Under External Pressure (77-PVP-57) **PVT 46**
Strain
Numerical Analysis of Time-Dependent Inelastic Deformation in Metallic Media Using the Boundary-Integral Equation Method **AM 785**
A State Variable Interpretation of Some Rate-Dependent Inelastic Properties of Steel **MT 395**
Strain-Displacement Relationships
Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**
Strain Effect
The Effect of Plastic Strain Followed by Aging on the Torsion Fatigue Resistance of Quenched and Tempered 4340 Steel (TB) **MT 219**
Strain Energy
Developing Failure Criteria for Adhesive Joints Under Complex Loading (77-WA/Mat-10) **MT 25**
Strain Energy Minimization
Strain Energy Minimization Leading to Timoshenko's Clamped Rectangular Plate Solution (BN) **AM 948**
Strain Failure Criterion
Angled Elliptic Notch Problem in Compression and Tension **AM 258**
Strain-Gage Force Transducers
Analysis of Leg Loading in Snow Skiing **DS 177**
Strain Gauges
A Note on the Active Compensation of a Flexibly Mounted Stabilized Platform (TB) **DS 92**
Strain Growth
An Experimental Study of Progressive Strain Growth Due to Thermal-Stress Ratcheting **MT 150**
Strain Hardening
Analysis of Closure in Fatigue Crack Growth **AM 267**
Cyclic Plasticity for Nonproportional Paths: Part 1—Cyclic Hardening, Erasure of Memory, and Subsequent Strain Hardening Experiments (77-WA/Mat-12) **MT 96**; Part 2—Comparison With Predictions of Three Imcremental Plasticity Models (77-WA/Mat-13) **MT 104**
Strain Rate
Deformation of Polymers During Hydrostatic Extrusion **PVT 400**
Effect of Strain Hardening on the Large Plastic Deformation of a Cantilever (BN) **AM 953**
Elastic and Elastic-Plastic Buckling of Internally Pressurized 2:1 Ellipsoidal Shells (78-PVP-47) **PVT 335**
Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/Prod-29) **I 217**
Strain Rate
Experiments on Strain Rate History and Temperature Effects During the Plastic Deformation of Close-Packed Metals **AM 60**
Strain Rate Effects in Low Speed Two-Body Abrasion **L 181**
Viscoplastic Constitutive Equations for Copper With Strain Rate History and Temperature Effects **MT 388**
Strain Ratio
Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **MT 421**
Strains
Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) **MT 18**
An Analysis of High Temperature Metal Creep—Part II: A

Constitutive Formulation and Verification **MT 371**
The Biomechanical Function of the Collagen Fibril Ultrastructure of Articular Cartilage **BE 105**
Cyclic Plasticity for Nonproportional Paths: Part 1—Cyclic Hardening, Erasure of Memory, and Subsequent Strain Hardening Experiments (77-WA/Mat-12) **MT 96**; Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) **MT 104**
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) **P 356**
The Influence of Material Variability on the Predicted Environmental Behavior of Composite Materials (77-WA/Mat-9) **MT 77**
Residual Strains Around Coldworked Fastener Holes **MT 310**
On the Stress Field and Surface Deformation in a Half Space With a Cuboidal Zone in Which Initial Strains Are Uniform **AM 302**
Waves From Suddenly Punched Hole in Finitely Stretched Elastic Sheet **AM 63**
Strand, T. Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) **P 618**
Stratified Fluids
Heat Transfer by Natural Convection Between a Vertical Surface and a Stably Stratified Fluid (TN) **HT 378**
Time-Dependent Double-Diffusive Instability in a Density-Stratified Fluid along a Heated Inclined Wall (78-HT-43) **HT 653**
Stream Function Solution
On the Exact Solution for the Two-Sphere Problem in Axisymmetrical Potential Flow **AM 483**
Stream Functions
Peristaltic Pumping of a Newtonian Fluid With Particles Suspended in It at Low Reynolds Number Under Long Wavelength Approximations **AM 32**
Streamtubes
An Isentropic Streamtube Model for Flashing Two-Phase Vapor-Liquid Flow **HT 595**
Streamwise Corner
The Viscous Sublayer in a Streamwise Corner (BN) **AM 219**
Streamwise Pressure Gradient
Measurements of Skewed Boundary Layers in a Curved Duct With Variation in Streamwise Pressure Gradient (TB) **F 124**
Strength Measurement
A New Hooked Needle Device For Forming Fiber Beards For Length and Strength Measurement (77-Tex-2) **I 5**
Strenkowski, J. Transient Response of Continuous Elastic Structures With Viscous Damping (78-WA/APM-5) **AM 877**
Strenkowski, J. S. Transient Response of a Rotor in Damped Bearings (77-DET-21) **MD 257**
Stress
An Analysis of High Temperature Metal Creep—Part I: Experimental Definition of an Alloy **MT 363**; Part II: A Constitutive Formulation and Verification **MT 371**
Application of Resistance Curves to Residual Strength Prediction **MT 138**
Axisymmetric Bending of Annular Plates (78-WA/APM-27) **AM 834**
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 1: Analysis (77-DET-52) **MD 382**; Part 2: Experimental Investigation (77-DET-53) **MD 395**; (D) (AC) **MD 404**
The Biomechanical Function of the Collagen Fibril Ultrastructure of Articular Cartilage **BE 105**
Bursting Pressure as the Basis for Cylinder Design **PVT 374**
Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**
Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-APM-3) **AM 507**
Cyclic Plasticity for Nonproportional Paths: Part 1—Cyclic Hardening, Erasure of Memory, and Subsequent Strain Hardening Experiments (77-WA/Mat-12) **MT 96**; Part 2—Comparison With Predictions of Three Incremental Plasticity Models (77-WA/Mat-13) **MT 104**
Deformations and Stresses in Soft Body Tissues of a Sitting Person **BE 79**
Dynamic Stress Concentration Around Two Coplanar Griffith Cracks in an Infinite Elastic Medium **AM 803**
Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) **MD 69**
Dynamically Induced Interfacial Stresses in Fibrous Composites (BN) **AM 442**
Elastic-Plastic R-Curves (78-Mat-12) **MT 258**
An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) **MD 614**
An Evaluation of Mean Reynolds Stress Turbulence Models: The Triple Velocity Correlation **F 47**
Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) **P 704**
On the Eversion of a Superplastic, Thin Walled Tube (TB) **MT 428**
Experiments on Strain Rate History and Temperature Effects During the Plastic Deformation of Close-Packed Metals **AM 60**
Fatigue Strength and Maintenance of the Wheel-Axle Assembly for the Japanese Fast Train (Shinkansen) **MT 227**
Finite Elasticity Solutions Using Hybrid Finite Elements Based on a Complementary Energy Principle (78-WA/APM-1) **AM 539**
Finite Extension of an Elastic Strand With a Central Core (78-WA/APM-7) **AM 852**
Fracture Mechanics of Composite Materials **MT 233**
Fracture Under Combined Loads by Maximum-Energy-Release-Rate Criterion **AM 553**
General Yielding of Charpy V-Notch and Precracked Charpy Specimens **MT 183**
Heat Transfer and Shear Stress on a Heated Cone (BN) **AM 952**
Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**
The Influence of Material Variability on the Predicted Environmental Behavior of Composite Materials (77-WA/Mat-9) **MT 77**
Irradiation Effects on the Behavior of Structural Materials at Elevated Temperature **MT 121**
Limit Analysis of Hollow Disk Forging—Part 1: Upper Bound (77-WA/Prod-2) **I 340**; (D) (AC) **I 345**; Part 2: Lower Bound (77-WA/Prod-3) **I 347**; (D) (AC) **I 345**
Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Fluid Ends (77-Pet-42) **PVT 39**
Mechanical Behavior of Nonlinear Visco-Elastic Celluloid Under Superimposed Hydrostatic Pressure **PVT 271**
A New Cumulative Damage Model: Part 2 **AM 251**
Nonlinear Material Damping for Nonsinusoidal Strain **AM 883**
Notch Effects, Stress State, and Ductility **MT 348**
Numerical Analysis of Time-Dependent Inelastic Deformation in Metallic Media Using the Boundary-Integral Equation Method **AM 785**
One Dimensional, Linear Dynamic Electromechanical Responses of Ferroelectric Ceramics **AM 749**
Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) **MD 319**
Optimization of Cold Rolling by Nonlinear Programming (77-WA/Prod-25) **I 186**
Optimum Design of Bridge Girders for Electric Overhead Traveling Cranes (76-WA/DE-28) **I 375**
Photoelastic Analysis of a Composite Prism Subjected to Partial Compression (BN) **AM 436**
A Plastic-Strain, Mean-Stress Criterion for Ductile Fracture (78-Mat-13) **MT 279**
Quarter Elliptical Cracks Emanating From Holes in Plates **MT 144**
Reliability and Durability of Ceramic Regenerators in a Gas Turbine (77-GT-59) **P 73**
Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) **MD 619**
Rules and Methods of Stress and Stability Calculations in the Presence of Creep (DDM) **AM 669**
Saint-Venant's Principle for a Helical Spring **AM 297**
A State Variable Interpretation of Some Rate-Dependent Inelastic Properties of Steel **MT 395**
The Stress Controlled High Cycle Fatigue Response of a Metastable Beta Titanium Alloy as Influenced by Several Test Variables (TB) **MT 426**
Stress in Glass Fibers Induced by the Draw Force (78-WA/APM-21) **AM 765**
Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**
Stresses in Ruptured Floating Roofs **PVT 291**
Stresses in a Solidifying Semitransparent Cylindrical Medium by Conduction and Radiation (BN) **AM 946**
Structural Designing With Ceramic Materials **P 260**
Thermal Damage and Rail Load Stresses in a 33-Inch Railroad Car Wheel (77-WA/RT-2) **I 363**
Thermal Response of Slabs Subjected to Non-Symmetric Convective Heat Transfer (78-DE-8) **MD 706**
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) **I 43**
Thermal Stresses in a Submerged-Arc Welded Joint Considering Phase Transformations **MT 356**
A Three-Dimensional Treatment of Transient Thermal Stresses in a Circular Cylinder Due to an Arbitrary Heat Supply **AM 817**
Three-Shaft Automotive Turbine-Transmission Systems of the KTT Type—Performance and Features (77-GT-94) **P 95**
Tool Life Distributions—Part 3: Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) **I 193**
Variables Influencing Degradation of SiC Abrasive Papers **L 501**
Viscoplastic Constitutive Equations for Copper With Strain Rate History and Temperature Effects **MT 388**
Wear Studies on Aircraft Brake Materials **L 98**
Wear of Titanium and Titanium Alloys Under Conditions of Rolling Stress **L 199**
Stress Analysis
Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) **P 380**; (D) (AC) **P 389**
Design Curves for Stress Analysis of U-Tube Heat Exchanger Tubesheet With Integral Channel and Head **PVT 221**
Elastic Design Methods for Perforated Plates (77-JPGC-NE-20) **P 356**
Stress Analysis of Pipe Bends by Ring Elements **PVT 112**
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) **I 273**
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) **PVT 107**
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) **PVT 134**
Stress Concentration
Reduction of Stress Concentration Due to Interference Fits in an Infinite Plate With Two Holes **PVT 369**
Stress Concentration in a Stretched Cylindrical Shell With Two Elliptical Holes (78-WA/APM-18) **AM 839**
Stress-Concentration Factors
Stress-Concentration Factors for a Countersunk Hole in a Flat Bar Tension and Transverse Bending (DDM) **AM 929**
Stress Condition
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) **MD 77**
Stress Contours
A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) **I 31**
Stress Distribution
Mechanical Reliability Confidence Limits (77-WA/DE-12) **MD 607**; (D) (AC) **MD 613**
Spherical Indentation of Nonhomogeneous Materials (BN) **AM 944**
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) **MD 630**
Stress Factors
High-Temperature Potential of Uncooled Radial Turbines (77-GT-46) **P 294**
Stress Fields
The End-Values of Distributed Loads in Half Planes by Caustics **AM 313**
Nonlinear Wrinkling of Nonlinear Membranes of Revolution **AM 533**
Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) **L 156**; (D) (AC) **L 165**
On the Stress Field and Surface Deformation in a Half Space With a Cuboidal Zone in Which Initial Strains Are Uniform **AM 302**
On the Thermal Effects in a Warp Beam (A Wound-Yarn-Package) (77-Tex-3) **I 8**
Stress-Free Edges
Effect of Stress-Free Edges in Plane Shear of a Rectangular Orthotropic Region **AM 307**
Stress Functions
Application of Stress Functions to Initial Stress Problems **AM 350**

Stress Intensity
Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) **MT 381**
Crack Growth Resistance at Low Stress Intensities **MT 134**
The Effect of Adhesive Layers on the Fracture of Laminated Structures (77-WA/Mat-4) **MT 2**
Fracture Analysis of Adhesively Bonded Cracked Panels (77-WA/Mat-2) **MT 10**
Stress Intensity Factors
Analysis of Branched Cracks **AM 797**
Combined Mode Fracture Toughness Measurement by the Disk Test **MT 175**
Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**
Embedded Elliptical Crack at a Corner (78-PVP-5) **PVT 28**
Growth Characteristics of a Fatigue Crack Approaching and Growing Beneath an Adhesively Bonded Doubler (77-WA/Mat-14) **MT 52**
Influence of Rotatory Inertia on Steady-State Crack Propagation in a Finite Plate Subjected to Out-of-Plane Bending **AM 130**
The Interface Crack in a Shear Field **AM 287**
Magnetoelastic Interaction of a Soft Ferromagnetic Elastic Solid With a Penny-Shaped Crack in a Constant Axial Magnetic Field **AM 291**
A Parametric Study of Fatigue Crack Growth Behavior in Adhesively Bonded Metallic Structures (77-WA/Mat-5) **MT 46**
Pressure Tubes: The Pressure Vessels in the CANDU Nuclear Power Reactor (IPT) **PVT 328**
A Ray Theory for Elastodynamic Stress-Intensity Factors **AM 123**
Stress-Intensity Factors for Arbitrarily Oriented Cracks in Shallow Shells **AM 135**
Stress Intensity Factors for Reactor Vessel Nozzle Cracks **PVT 141**
Sudden Appearance of a Crack in a Stretched Finite Strip **AM 277**
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) **AM 281**
Three-Dimensional Wave Propagation in a Cracked Elastic Solid **AM 807**
A Weakest-Link Model for the Prediction of Fatigue Crack Growth Rate **MT 170**
Stress Measurement
Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) **PVT 24**
Stress Pulses
A Reexamination of Miklowitz-Kolsky Model (BN) **AM 218**
Stress Ratio
Application of the R-Curve Concept to Fatigue Crack Growth **MT 416**
Stress Relaxation Analysis
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) **L 287**; (D) **L 294**; (AC) **L 295**
Constitutive Modeling of Elevated Temperature Stress Relaxation in Austenitic Stainless Steels (TB) **MT 221**
Stress Rupture Behavior
High Temperature Properties and Constitutive Equations for 1 Cr-½ Mo Steel (77-PVP-50) **PVT 246**
Stress Singularity
Stress Singularity at the Corner of a Wedge-Shaped Crack or Inclusion (78-WA/APM-6) **AM 791**
Stress-Strain Analysis
Stress-Strain Analysis of Cyclic Plastic Bending and Torsion **MT 157**
Stress-Strain Behavior
Construction of Nonlinear Monotonic Functions With Selectable Intervals of Almost Constant or Linear Behavior (78-WA/APM-22) **AM 780**
Stress-Strain Curves
Bending of a Nonlinear Rectangular Beam in Large Deflection (BN) **AM 213**
Finite-Difference Solution for the Uniaxial Endochronic Viscoplastic Wave Problem (BN) **AM 221**
On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**
Stress-Strain Range
A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes' **PVT 256**
Stress-Strain Relations
Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates **AM 521**
Stress Wave Propagation
The Effect of Material Constitutive Models on Stress Wave Propagation Calculations (77-WA/Mat-8) **MT 84**
Stress Waves
Stress Waves in Nonelastic Solids (BR) **AM 970**
Stresses
Adhesive Bond Stresses and Strains at Discontinuities and Cracks in Bonded Structures (77-WA/Mat-6) **MT 16**
Stretched Elastic Sheet
Waves From Suddenly Punched Hole in Finitely Stretched Elastic Sheet **AM 83**
Stretched Finite Strip
Sudden Appearance of a Crack in a Stretched Finite Strip **AM 277**
Stretched Sheets
Void Growth and Local Necking in Biaxially Stretched Sheets **MT 164**
Stretching Plates and Shells
Dynamic Plastic Instabilities in Stretching Plates and Shells **AM 105**
Strickland, J. H. A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages (D) (AC) **F 376**
Strinning, P. E. Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**
Strip Forging
Disk and Strip Forging with Side-Surface Foldover—Part 1: Velocity Field and Upper-Bound Analysis (77-WA/Prod-36) **I 421**; Part 2: Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) **I 428**
Strip Rolling
Computer-Aided Analysis of the Deformations and Temperatures in Strip Rolling (77-WA/Prod-34) **I 159**
Strips
An Elastic Strip Pressed Against an Elastic Half Plane by a Steadily Moving Force **AM 89**
Sudden Appearance of a Crack in a Stretched Finite Strip **AM 277**
Strong, A. B. The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) (D) **F 15**; (AC) **F 16** **F 10**; A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**
Structural Analysis
Automated Optimum Design of Machine Tool Structures for Static Rigidity, Natural Frequencies and Regenerative Chatter Stability (77-WA/Prod-15) **I 137**
Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 660**
Fracture Discontinuities and Structural Analysis in Resource Recovery Endeavors (77-Pet-32) **PVT 2**
Fracture Mechanics Approach to Fatigue Analysis in Design **MT 113**
Structural Bonded Joints
Fatigue Crack Growth of Bondline Cracks in Structural Bonded Joints **MT 39**
Structural Composition
A Thermodynamic Model of Biological Body: Muscle Mechanics **BE 14**
Structural Damping
Pipes Supported at Both Ends Cannot Flutter **AM 619**
Structural Design
Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) **PVT 200**
Pile Foundations in Frozen Soils (77-Pet-79) **PVT 302**
Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) **MD 311**
Structural and Cooling Aspects of the Aden Nonaxisymmetric Exhaust Nozzle (77-GT-110) **P 308**
Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**
Structural Designing With Ceramic Materials **P 260**
Structural and Mechanical Design of Tokamaks (77-WA/NE-2) **P 404**
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) **P 363**
Structural Dynamics
Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 1: Implementation **AM 595**; Part 2: Error Propagation **AM 603**
Implicit-Explicit Finite Elements in Transient Analysis: Implementation and Numerical Examples **AM 375**
Implicit-Explicit Finite Elements in Transient Analysis: Stability Theory **AM 371**
Residual-Flexibility CORRECTIONS FOR Transient Modal Rotordynamic Models (77-DET-31) **MD 251**
Structural Effect
Effect of Structure on Wear Resistance of Co-, Fe-, and Ni-Base Alloys **L 428**
Structural Group Classification
Theory of Mechanisms and Machines (Theory, Example, Graphical Operations)—Translation (GR) **MD 206**
Structural Materials
Concerning a Creep Surface Derived From a Multiple Integral Representation for 304 Stainless Steel Under Combined Tension and Torsion (78-WA/APM-11) **AM 773**
Elastic-Plastic R-Curves (78-Mat-12) **MT 258**
Irradiation Effects on the Behavior of Structural Materials at Elevated Temperature **MT 121**
Optimal Shape of Shallow Circular Arches Against Snap-Buckling **AM 591**
Structural Mechanics
Mechanik der Polymer Werkstoffe (BR) **AM 456**
Structural and Geotechnical Mechanics (BR) **AM 968**
Structural Members
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**
The Riccati Transfer Matrix Method (77-DET-32) **MD 297**
Transient Response of Continuous Elastic Structures With Viscous Damping (78-WA/APM-5) **AM 877**
Structure Parameters
Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/Prod-1) **I 113**
Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) **I 332**; (D) (AC) **I 339**
Structural Performance
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) **I 273**
Structural Properties
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**
Structural Reliability
A Means of Assessing the Effects of Periodic Proof Testing and NDE ON THE Reliability of Cyclically Loaded Structures (77-PVP-44) **PVT 150**
The Response of an Oscillator With Bilinear Hysteresis to Stationary Random Excitation **AM 923**
Structural Response
Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**
Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) **I 261**; (D) **I 271**; (AC) **I 272**
Structural System Design
Stationary Response of a Randomly Parametric Excited Nonlinear System (78-WA/APM-13) **AM 910**
Structural Systems
Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) **MD 319**
Structural Welds
An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) **PVT 85**
Structures
Fatigue Life Prediction of Complex Structures (77-DE-46) **MD 2**
Stuart, J. T. The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow (D) **F 337-380**; (AC) **F 380**
Stub Cantilever Plate
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) **MD 374**
Sturges, D. J. Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) **MD 16**
Subcooled Water
Choked Expansion of Subcooled Water and the I.H.E. Flow Model **HT 275**
Subcooling
Effect of Subcooling on Cylindrical Melting **HT 395**
Subcritical Steam Generator
Fuel Controller Design in a Once-Through Subcritical Steam Generator System **P 189**
Submerged-Arc Welded Joint
Thermal Stresses in a Submerged-Arc Welded Joint Considering Phase Transformations **MT 356**
Submersibles
Spherical Acrylic Pressure Hulls With Multiple Penetrations (77-WA/Oce-2) **I 261**; (D) **I 271**; (AC) **I 272**

Subsoil Conditions
Pile Foundations in Frozen Soils (77-Pet-79) **PVT 302**
Subsonic Cascades
Experimentally Determined Stability Parameters of a Subsonic Cascade Oscillating Near Stall (77-GT-47) **P 111**
Subsonic Cross Flow
Mixing Process Induced by the Vorticity Associated with the Penetration of a Jet into a Cross Flow **P 465**
Subramanyan, S. A Cumulative Damage Rule Based on Successive Reduction in Fatigue Limit (TB) **MT 212**
Subsurface Flaws
Status ASME XI Appendix A—Evaluation of Flaw Indications **PVT 417**
Successive Finite Rotations
Successive Finite Rotations (BN) **AM 945**
Sucec, J. Transient Conduction in a Slab With Temperature Dependent Thermal Conductivity (TN) **HT 172**
Sugishita, J. Variables Influencing Degradation of SiC Abrasive Papers **L 501**
Suh, N. P. On an Axiomatic Approach to Manufacturing and Manufacturing Systems (77-WA/Prod-14) **I 127**
Suhubi, E. S. *(author)* Elastodynamics, Vol. II, Linear Theory (BR) **AM 229**
Sullivan, A. M. "Proof of the Pudding"; "Form Follows Function" (Ed) **MT 337**
Sullivan, D. A. Exact and Approximate Equations for Real-Fluid Isentropic Flow **F 413**
Sultan, M. Spatial Distribution of Active Sites and Bubble Flux Density **HT 56**
Summerfield, M. Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) **HT 531**
Sun, D.-C. On the Roughness Effect in Hydrodynamic Lubrication (D) (AC) **L 180**
Sundararajan, C. An Approximate Solution for the Fundamental Frequency of Plates (BN) **AM 936**
Supercavitating Flat-Plate Hydrofoil
Leading-Edge Correction for the Supercavitating Flat-Plate Hydrofoil (77-FE-21) **F 278**; (D) (AC) **F 280**
Superconducting Generator
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) **MD 630**
Superconducting Windings
Transient Thermal Analysis of Epoxy-Impregnated Superconducting Windings in Linearly Ramped Fields (77-HT-77) **HT 702**
Supercritical Solutions
Supercritical Solutions for the Buoyancy Boundary Layer (78-HT-38) (A) **HT 648**
Superheat
Corresponding States Correlations of the Extreme Liquid Superheat and Vapor Subcooling (77-HT-20) **HT 492**
Early Response of Hot Water to Sudden Release from High Pressure **HT 473**
Experimental Study on Bubble Nucleation in the Oscillating Pressure Field (77-HT-22) **HT 460**
Experiments and Universal Growth Relations for Vapor Bubbles With Microlayers **HT 41**
Magnetic Field Effects on Bubble Growth in Boiling Liquid Metals **HT 466**
Superheat Limit
On the Thermodynamic Superheat Limit for Liquid Metals and Its Relation to the Leidenfrost Temperature (TN) **HT 734**
Superimposed Hydrostatic Pressure
Mechanical Behavior of Nonlinear Visco-Elastic Celluloid Under Superimposed Hydrostatic Pressure **PVT 271**
Superplastic Tube
On the Eversion of a Superplastic, Thin Walled Tube (TB) **MT 428**
Superposed Fluids
Oscillation Modes in Superposed Fluids (BN) **AM 204**
Superseismic Stage
An Exact Solution for the Superseismic Stage of Dynamic Contact Between a Punch and an Elastic Body (Er) **AM 459**
Supersonic Compressors
Interaction of the Rotor Blade Shock Waves in Supersonic Compressors With Upstream Stator Vanes (77-GT-93) **P 140**
Supersonic First Stage
Aerodynamic Design and Verification of a Two-Stage Turbine With a Supersonic First Stage **P 197**
Supersonic Flow
Interacting Turbulent Boundary Layer over a Wavy Wall **HT 678**
Support Damping
Optimum Bearing and Support Damping for Unbalance Response and Stability of Rotating Machinery (77-GT-27) **P 89**
Supported Bearings
The Dynamics of Multi-Rotor Systems Supported on Oil Film Bearings (77-DET-29) **MD 156**
Surface Areas
An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**
Surface Boundary Layers
Some Effects of Mechanically-Produced Unsteady Boundary Layer Flows on Convective Heat Transfer Augmentation **HT 25**
Survey Committee
Progress in Railway Mechanical Engineering (1976-1977 Report of Survey Committee) Cars and Equipment (77-WA/RT-5) **I 79**
Surface Comparison
Performance Ranking of Plate-Fin Heat Exchanger Surfaces (76-WA/HT-31) **HT 514**
Surface Conditions
On the Influence of Surface Conditions in Nucleate Boiling—the Concept of Bubble Flux Density **HT 618**
Mechanics of Rotary Dressing of Grinding Wheels (77-WA/Prod-23) **I 95**
Surface Cracks
Fracture Mechanics Approach to Fatigue Analysis in Design **MT 113**
Three-Dimensional Wave Propagation in a Cracked Elastic Solid **AM 807**
Wear Studies on Aircraft Brake Materials **L 98**
Surface Curvature
An Analysis of Undercut Conditions and of Appearance of Contact Lines Envelope Conditions of Gears (77-DET-2) **MD 423**
Frictional Moment of Flow Between Two Concentric Spheres, One of Which Rotates **F 97**
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) **P 439**
Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (D) **F 375**; (AC) **F 376**
Surface Defects
Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**
Surface Deformation
On the Stress Field and Surface Deformation in a Half Space With a Cuboidal Zone in Which Initial Strains Are Uniform **AM 302**
Surface Deformation Energy
Determining the Coefficient of Friction for Rolling Disks (77-Lub-11) **L 25**
Surface Dispersion
Harmonic Wave Propagation in a Periodically Layered, Infinite Elastic Body: Antiplane Strain **AM 343**
Surface Electrical Potentials
Shallow Formation Hydrofracture Mapping Experiment (77-Pet-51) **PVT 24**
Surface Erosion
Helium Blistering in Metals (78-Mat-5) **MT 411**
The Influence of Droplet Size on the Turbine Blading Erosion Hazard **P 561**
Surface Fatigue
Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) **MD 433**
Surface Finish
The Conflicting Roles of Carbontetrachloride as a Boundary Lubricant (77-WA/Prod-7) **I 244**
Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/Prod-27) **I 297**
The Optimal Machine Tool Control Problem **DS 170**
Surface Heat
Radial Heat Transfer and Critical Biot Number With Radiation, Uniform Surface Effects in Convection (TN) **HT 374**
Surface Inhomogeneity
The Effect of a Thin Layer Surface Inhomogeneity on Dynamic Surface Response **AM 95**
Surface Heat Flux
Forced Convection Heat Transfer from Nonisothermal Thin Needles **HT 358**
Surface-Heating Problems
Assessment of Surface-Heating Problems in Laser-Fusion Reactors **HT 311**
Surface Loadings
The Preparation of Calcium Superoxide at Subambient Temperatures and Pressures (77-ENAs-55) **I 28**
Surface Lubricants
Lubricant-Breakdown in Instrument Ball Bearings (77-Lub-20) **L 386**; (D) **L 393**; (AC) **L 394**
Surface Measurements
Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) **F 37**; (D) **F 45**; (AC) **F 46**
Surface Micromorphology
The Room Temperature and Elevated Temperature Fracture Toughness Response of Alloy A-286 **MT 195**
Surface Oxidation
Aerothermochemistry of Metal Erosion by Hot Reactive Gases (77-HT-12) **HT 531**
Surface Parameters
Thermal Response of Slabs Subjected to Non-Symmetric Convective Heat Transfer (78-DE-8) **MD 706**
Surface Pressure
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) **P 363**
Surface Pressure Distribution
Approximate Numerical Solutions for Two-Dimensional Potential Flow Problems (TB) **F 122**
Deformations and Stresses in Soft Body Tissues of a Sitting Person **BE 79**
Surface Profile Signals
Asperity Interactions In EHD Contacts (77-Lub-19) **L 246**; (D) **L 252**; (AC) **L 253**
Surface Properties
Instantaneous Invariants in Three-Dimensional Kinematics **AM 409**
Methods of Decreasing Wear in Metal-Polymer Contacts **L 185**
Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) **MD 460**
Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) **MD 16**
Surface Pyrolysis
An Investigation of the Laminar Overfire Region Along Upright Surfaces (77-HT-68) **HT 112**
Surface Rejuvenation
A Surface Rejuvenation Model for Turbulent Heat Transfer in Annular Flow With High Prandtl Numbers **HT 92**
Surface Ribbing
Surface Ribbing of a Thin Viscous Fluid Film Emerging From a Spreader or Roller **L 462**
Surface Roughness
Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) **MD 440**
Design and Manufacture of High Precision Gear of Large Diameters for Large Telescopes (77-DET-174) **MD 723**
Effects of Surface Roughness in Lubrication — A Review of the Fourth Leeds-Lyon Symposium (FR) **L 6**
Gas Flow Through Cracks **F 453**
Influence of Volute Surface Roughness on the Performance of a Centrifugal Pump **F 473**
Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) **L 156**; (D) (AC) **L 185**
A Realistic Solution of the Symmetric Top Problem (78-WA/APM-20) **AM 903**
On the Roughness Effect in Hydrodynamic Lubrication **L 178**; (D) (AC) **L 180**
Wear In Lubricated Journal Bearings **L 104**
Surface Shapes
Solution of Navier's Equation in Cylindrical Curvilinear Coordinates **AM 812**
Surface Shear Stress
Laminar Shear Layer Due to a Thin Flat Plate Oscillating With Zero Mean Velocity (78-WA/FE-16) **F 367**
Surface Stress Distribution
Axisymmetric Bending of Annular Plates (78-WA/APM-27) **AM 834**
Surface Temperature Distributions
Thermographic Determination of Fatigue Damage **MT 200**
Surface Temperature
Correlation Equations for Turbulent Thermal Convection in a Horizontal Fluid Layer Heated Internally and from Below **HT 416**
Experiments on the Onset of Longitudinal Vortices in Horizontal Blasius Flow Heated from Below **HT 71**
Heat Transfer During Piston Compression **HT 527**
An Investigation of the Minimum Film Boiling Temperature on Horizontal Surfaces **HT 260**

Spatial Distribution of Active Sites and Bubble Flux Density **HT 56**
A Three-Dimensional Treatment of Transient Thermal Stresses in a Circular Cylinder Due to an Arbitrary Heat Supply **AM 817**
Transient Temperature Profile of a Hot Wall Due to an Impinging Liquid Droplet (TN) **HT 167**
Two Temperature Gradient Models for Friction Failure (77-Lub-28) **L 479**; (D) **L 484**; (AC) **L 485**

Surface Temperature Measurements
A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) **L 110**

Surface Tension
Concerning a Creep Surface Derived From a Multiple Integral Representation for 304 Stainless Steel Under Combined Tension and Torsion (78-WA/APM-11) **AM 773**
Indentation of a Membrane on an Elastic Half Space **AM 320**
The Temperature Dependence of Surface Tension of Pure Fluids **HT 324**
Wave Propagation and Instability in a Circular Semi-Infinite Liquid Jet Harmonically Forced at the Nozzle **AM 489**

Surface Wave Method
High Frequency Ultrasonic Evaluation of Ceramics for Gas Turbines **P 549**

Surface Waves
Instability of Elastically Suspended Tainter-Gate System Caused By Surface Waves on the Reservoir of a Dam (D) **F 140**; (AC) **F 141**
Wave Effects on the Transport to Falling Laminar Liquid Films **HT 143**

Surface Wear
Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear **L 492**; (D) (AC) **L 499**

Surging
First-Order Pump Surge Behavior (77-WA/FE-12) **F 459**

Suspension Systems
Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part I—A Mathematical Model **DS 311**; Part II—Simulated Versus Experimental Data **DS 319**
Magnetic Suspension for Low-Speed Vehicles **DS 333**
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) **MD 500**
Optimization of Rail Vehicle Operating Speed With Practical Constraints (78-WA/DSC-28) **DS 260**
Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) **I 311**; (D) **I 316**; (AC) **I 317**
Rail Passenger Vehicle Lateral Dynamic Performance Improvement Through Active Control **DS 270**
Stability of a Vehicle on a Multispan Simply Supported Guideway **DS 326**

Suter, P. Interaction of the Rotor Blade Shock Waves in Supersonic Compressors With Upstream Stator Vanes (77-GT-93) **P 140**

Sutera, S. P. Red Cell Motion and Deformation in the Microcirculation **BE 139**

Suzuki, K. Design and Development of a High-Pressure Combustor for Aero-Gas-Turbines (77-GT-96) **P 129**

Svlatoslavsky, I. N. Structural and Mechanical Design of Tokamaks (77-WA/NE-2) **P 404**

Sviridyonok, A. I. Methods of Decreasing Wear in Metal-Polymer Contacts **L 185**; (Er) **L 486**

Swanson, W. M. Vortex Motion and Induced Pressures in a Model of the Aortic Valve **BE 216**

Swearengen, J. C. Constitutive Modeling of Elevated Temperature Stress Relaxation in Austenitic Stainless Steels (TB) **MT 221**

Sweet, L. M. Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) **DS 24**; Optimal Control of On-Board and Station Flywheel Storage for Rail Transit Systems **DS 264**

Swift, T. Fracture Analysis of Adhesively Bonded Cracked Panels (77-WA/Mat-2) **MT 10**

Swirling Flows
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) **P 618**
Sufficient Conditions for Stability of Rotating Flows **AM 7**

Switching Hypersurface
Quasi-Time-Optimal Feedback Control of Some Fifth-Order Systems **DS 201**

Symm, G. T. *(author)* Integral Equation Methods in Potential Theory and Elastostatics (BR) **AM 966**

Symmetric Plane
Turbulence Characteristics of the Flow Downstream of a Symmetric, Plane Sudden Expansion **F 308**

Symmetric Sink Flow
Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**

Symmetric Top Problem
A Realistic Solution of the Symmetric Top Problem (78-WA/APM-20) **AM 903**

Symmetrical Blades
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) **MD 183**

Synovial Fluids
Rheological Equations for Synovial Fluids **BE 169**

Synthesis Procedure
Mechanical Error Analysis of Spatial Linkages (77-WA/DE-8) **MD 732**

System Controllability
Caratheodory Controllability Criterion for Nonlinear Dynamical Systems **DS 209**

System Damping
Response of a Multidegree-of-Freedom System to Nonstationary Random Excitation **AM 649**

System Design
Bursting Pressure as the Basis for Cylinder Design **PVT 374**

System Dynamics
A Control Algorithm For Reactor Spatial Control During Nuclear Station Load Cycling **DS 219**
Identification of Machining System Dynamics by Equation Error Minimization (77-WA/Prod-44) **I 332**; (D) (AC) **I 339**

System Geometry
Model Formulation of Complex Mechanisms With Multiple Inputs: Part 1—Geometry (77-WA/DE-9) **MD 747**

System Identification
Stored Response Modeling **DS 132**

System Parameters
Optimum Design of Control System Compensators **DS 140**
A Technique for Compensating the Filter Performance by a Fictitious Noise **DS 154**
The Use of Sensitivity Functions to Match Matrix Transfer Functions to Time-Domain Performance Criteria **DS 187**

System Requirements
A Portable Personal Cooling System for Mine Rescue Operations (77-ENAs-53) **I 53**

System Response
The Steady State Response of Systems With Hardening Hysteresis (77-DET-71) **MD 193**

System Springs
Model Formulation of Complex Mechanisms With Multiple Inputs: Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) (AC) **MD 761**

System Synthesis
Developments in Nonlinear Controller Synthesis: An Overview **DS 59**

Systems Analysis
Nonlinear Systems Analysis (BR) **DS 161**

Systems Approach
TRIBOLOGY: A Systems Approach to the Science and Technology of Friction, Lubrication and Wear (BR) **L 513**

Systems Pressure
Influence of System Pressure on Microlayer Evaporation Heat Transfer **HT 49**

Szego, J. Analysis of the Effects of Finite Conductivity in the Single Blow Heat Storage Unit (TN) **HT 740**; Transient Behavior of a Solid Sensible Heat Thermal Storage Exchanger **HT 148**; Transient Response of a Hollow Cylindrical-Cross-Section Solid Sensible Heat Storage Unit—Single Fluid (TN) **HT 737**

Szprengiel, Z. The Influence of Droplet Size on the Turbine Blading Erosion Hazard **P 561**

T

Tabakoff, W. A Flow Study in Radial Inflow Turbine Scroll-Nozzle Assembly (77-WA/FE-4) **F 31**

Tabarrok, B. Application of Stress Functions to Initial Stress Problems **AM 350**

Taft, C. K. An Analysis of the Three-Way Underlapped Hydraulic Spool Servovalve **DS 117**

Taha, M. M. A. The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) **MD 696**

Tainter Gate
Instability of Elastically Suspended Tainter-Gate System Caused By Surface Waves on the Reservoir of a Dam (D) **F 140**; (AC) **F 141**

Tait-Kirkwood Equation
Exact and Approximate Equations for Real-Fluid Isentropic Flow **F 413**

Takahashi, Y. Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) **DS 50**

Takeda, R. A Design Method on Propeller Current Meters (77-WA/FM-5) **F 83**

Takauti, Y. A Three-Dimensional Treatment of Transient Thermal Stresses in a Circular Cylinder Due to an Arbitrary Heat Supply **AM 817**

Talke, F. E. Review of Wear Problems in the Computer Industry (77-Lub-4) **L 189**; (D) **L 195-197**; (AC) **L 196**

Tall Structures
Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structures (77-DET-84) **MD 279**

Tallian, T. E. Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) **L 158**; (D) (AC) **L 165**; Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (D) **L 232**; (AC) **L 234**

Tamanini, F. The Effect of Buoyancy on the Turbulence Structure of Vertical Round Jets **HT 659**

Tamuls, V. *(author)* Mechanik der Polymer Werkstoffe (BR) **AM 456**

Tan, C. S. Nonaxisymmetric Flow through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**

Tanaka, H. Torsional Flutter in Stalled Cascade **P 317**

Tanaka, M. Design of U-Shaped Bellows Considering Low-Cycle Fatigue **PVT 382**

Tangential Follower Forces
Stability of a Rectangular Simply Supported Plate Subjected to Nonincreasing Tangential Follower Forces (BN) **AM 223**

Tani, J. Thermal Buckling of an Annular Plate With Axisymmetric Initial Deflection (BN) **AM 693**

Tank Shell
Stiffness Coefficients and Allowable Loads for Nozzles in Flat-Bottom Storage Tanks (77-PVP-19) **PVT 389**

Tanouye, P. A. Strain Rate Effects in Low Speed Two-Body Abrasion **L 181**

Tap Error
Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) **F 265**; (D) **F 274**; (AC) **F 275**

Taper Roller Bearings
The Rigidity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) **MD 696**

Tatelshi, K. J-Integral Approach to Fracture of Rotating Disk **MT 128**

Tatom, F. B. Prediction of the Three-Dimensional Velocity Field of a Deflected Turbulent Jet (D) **F 249**; (AC) **F 250**

Taulbee, D. B. Air Mixing in a Model Lung Alveolus **BE 211**

Taylor, C. M. The Elastic Distortion of the Flanged Inner Ring of a High Speed Cylindrical Roller Bearing (77-Lub-8) **L 18**

Taylor, D. L. Wheel Rotations and Trailer Dynamics (BN) **AM 206**

Taylor, J. W. Dynamic Plastic Instabilities in Stretching Plates and Shells **AM 105**

Taylor, R. E. Thermal Diffusivity of Dispersed Materials **HT 720**; Thermal Properties of Tungsten SRM'S 730 and 799 **HT 330**

Taylor Vortex Flow
The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow (D) **F 377-380**; (AC) **F 380**

Teale, J. L. Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) **L 81**; (D) (AC) **L 90**

Technical Briefs
Analysis of Minimum Crush Deformation in Impact of Vehicles of Different Weight Classes **I 294**
On the Analytical Solution of Externally Pressurized Porous Gas Journal Bearings **L 442**
Approximation of Fundamental Equations for Finite-Dimensional Modeling of Thermo-Fluid Processes (TB) **P 722**

A Computer-Aided Feel Cam Design **MD 604**
Concerning Analysis of Central Burst in Metal Forming **I 386**
Constitutive Modeling of Elevated Temperature Stress Relaxation in Austentic Stainless Steels **MT 221**
Creep Relaxation of a Beam of General Cross Section Subjected to Mechanical and Thermal Loads (TB) **MD 626**
A Cumulative Damage Rule Based on Successive Reduction in Fatigue Limit **MT 212**
The Effect of Hub Fairings on Wind Turbine Rotor Performance **F 120**
The Effect of Plastic Strain Followed by Aging on the Torsion Fatigue Resistance of Quenched and Tempered 4340 Steel **MT 219**
The Elliptic Porous Slider at Low Crossflow Reynolds Numbers **L 444**
Evaluation of the Creep Resistance of Wire Rope End Attachments **MT 214**
The Generation of Continuous Gradient Functions **DS 152**
Geometry of Scalloped Closures for Cylindrical Vessels **PVT 310**
Influence of Selenium and Tellurium on the Fatigue of Low-Carbon Steel **MT 216**
Interferometric Deformation Measurement of Elastohydrodynamically Loaded Surfaces **L 508**
Nonlinear Vibrations of Orthotropic Plates Carrying Concentrated Mass **I 293**
A Note on the Active Compensation of a Flexibility Mounted Stabilized Platform **DS 92**
Optimal Allocation of Actuators for Distributed-Parameter Systems **DS 227**
Rational and Economical Multicomponent Seismic Design of Piping Systems **PVT 425**
Reducing the Temperature at Tool-Chip-Work Contact by Changing the Effective Thermal Conductivity of the Tool **I 387**
Stratapax Drill Bit for Gulf Coast Drilling **PVT 234**
The Stress Controlled High Cycle Fatigue Response of a Metastable Beta Titanium Alloy as Influenced by Several Test Variables **MT 426**
A Technique for Compensating the Filter Performance by a Fictitious Noise **DS 154**
Thermohydrodynamic Analysis for Laminar Flow Journal Bearing **L 510**

Technical Notes

Combined Conduction-Radiation Heat Transfer Through and Irradiated Semi-transparent Plate **HT 169**
Effect of Circumferential Wall Heat Conduction on Boundary Conditions for Heat Transfer in a Circular Tube **HT 537**
A Local Nonsimilarity Analysis of Free Convection From a Horizontal Cylindrical Surface **HT 165**
Nonsimilar Laminar Free Convection Flow Along a Non-isothermal Vertical Plate **HT 163**
Predictive Capabilities of Series Solutions for Laminar Free Convection Boundary Layer Heat Transfer **HT 160**
Transient Conduction in a Slab With Temperature Dependent Thermal Conductivity **HT 172**
Transient Temperature Profile of a Hot Wall Due to an Impinging Liquid Droplet **HT 167**

Teale, J. C. *(author)* Opening and Gripping Mechanism for Automatic Produce-Bagging Machine That Uses Factory-Roll Polyethylene Net Tubing (GR) **MD 204**

Telescopes

Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) **MD 723**

Tellurium

Influence of Selenium and Tellurium on the Fatigue of Low-Carbon Steel (TB) **MT 216**

Teman, R. *(author)* Navier Stokes Equations: Theory and Numerical Analysis (BR) **AM 456**

Temperature Applications

Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) **MT 381**

Temperature Changes

Plane Progressive Waves in a Binary Mixture of Linear Elastic Materials **AM 493**

Temperature Control

Therapeutic Effects of Postburn Cooling **BE 149**

Temperature Cycle

Steam Bottoming Plants for Combined Cycles **P 203**

Temperature Dependence

Convection in an Enclosure-Source and Sink Located Along a Single Horizontal Boundary **HT 205**
The Temperature Dependence of Surface Tension of Pure Fluids **HT 324**

Temperature-Dependent Parameters

A Finite Element Thermal Analysis Procedure for Several Temperature-Dependent Parameters (TN) **HT 551**

Temperature Dependent Thermal Conductivity

Transient Conduction in a Slab With Temperature Dependent Thermal Conductivity (TN) **HT 172**

Temperature-Dependent Viscosity

Convection in a Porous Medium Heated from Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient (77-HT-56) **HT 448**
Heat Transfer in Turbulent Pipe Flow for Liquids Having a Temperature-Dependent Viscosity **HT 224**

Temperature Differences

Melting and Natural Convection Due to a Vertical Embedded Heater (TN) **HT 368**
Natural Convection in a Horizontal Porous Medium Subjected to an End-to-End Temperature Difference **HT 191**
A Note on the General Formulation of Phase Change Problem as Heat Conduction Problem with a Moving Heat Source (TN) **HT 370**
Radial Heat Transfer and Critical Biot Number With Radiation, Uniform Surface Heat Generation, and Curvature Effects in Convection (TN) **HT 374**
Vertical Channel Parallel Flow Modification Associated With Density Extremum (TB) **F 128**

Temperature Distributions

Adiabatic Wall Temperature and Heat Transfer Downstream of Injection Through Two Rows of Holes (77-GT-50) **P 303**
Analytical Prediction of Three-Dimensional Cutting Process: Part 1—Basic Cutting Model and Energy Approach (77-WA/Prod-9) **I 222**; Part 2—Chip Formation and Cutting Force with Conventional Single-Point Tool (77-WA/Prod-10) **I 229**; Part 3—Cutting Temperature and Crater Wear of Carbide Tool (77-WA/Prod-11) **I 236**
Correlation of Tempering Effects With Temperature Distribution in Steel Cutting Tools (77-WA/Prod-16) **I 131**
Closed Form Solutions for Certain Heat Conduction Problems (TN) **HT 558**
Effect of Inhomogeneities and Finite Boundaries on Temperature Distributions in a Perfused Medium, With Application to Tumors **BE 235**
The Effect of Longitudinal Heat Conduction on Crossflow Heat Exchanger **HT 346**
Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/Prod-22) **I 119**
A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**
Flow and Heat Transfer in Convectively Cooled Underground Electric Cable Systems: Part 1—Velocity Distributions and Pressure Drop Correlations (76-WA/HT-45) **HT 30**; Part 2—Temperature Distributions and HEAT Transfer Correlations (76-WA/HT-42) **HT 38**
Free-Forced Convection in the Entry Region of a Heated Straight Pipe **HT 212**
Lubrication of High-Speed, Large Bore Tapered-Roller Bearings (77-Lub-13) **L 31**
A Mixture Theory for Quasi-One-Dimensional Diffusion in Fiber-Reinforced Composites **HT 128**
Thermal Instability of a Volumetrically-Heated Pool With Phase Change and a Free Upper Surface (TN) **HT 376**
Thermal Response of Slabs Subjected to Non-Symmetric Convective Heat Transfer (78-DE-8) **MD 706**
Thermal Stresses in a Submerged-Arc Welded Joint Considering Phase Transformations **MT 356**
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) **PVT 107**
Thermographic Determination of Fatigue Damage **MT 200**

Temperature Effects

Deformation of Polymers During Hydrostatic Extrusion **PVT 400**
Experiments on Strain Rate History and Temperature Effects During the Plastic Deformation of Close-Packed Metals **AM 60**
Techniques of Pilot-Scale Drilling Research (77-Pet-68) **PVT 188**
Viscoplastic Constitutive Equations for Copper With Strain Rate History and Temperature Effects **MT 388**

Temperature Elevations

An Electrical Method for Failure Prediction in Ductile Machine Elements at Elevated Temperatures (77-WA/DE-13) **MD 614**

Temperature Equilibrium

Calculations of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (76-WA/FE-31) **F 355**

Temperature Excess Ratio

An Efficient Algorithm for Evaluating Arrays of Extended Surface **HT 288**

Temperature Fields

Forced Convection Heat Transfer from Nonisothermal Thin Needles **HT 358**
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/Prod-26) **I 43**

Temperature Gradients

Stress in Glass Fibers Induced by the Draw Force (78-WA/APM-21) **AM 765**
Two Temperature Gradients Model for Friction Failure (77-Lub-28) **L 479**; (D) **L 484**; (AC) **L 485**

Temperature Increases

Determination of Admissible Temperature Increases to Prevent Vertical Track Buckling **AM 565**
Effect of an Elevated Pipeline on Moss Covered Ground Temperature **HT 383**

Temperature Measurements

Asperity Interactions in EHD Contacts (77-Lub-19) **L 246**; (D) **L 252**; (AC) **L 253**
An Experimental and Theoretical Study of Heat Transfer in Vertical Tube Flows **HT 86**
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along a Vertical Isothermal Wall **HT 177**
Heat Transfer During Piston Compression **HT 527**
Interferometric Investigation of Turbulently Fluctuating Temperature in an LMFBR Outlet Plenum Geometry (76-WA/HT-82) **HT 334**
An Investigation of the Laminar Overfire Region Along Upright Surfaces (77-HT-68) **HT 112**
Longitudinal Heat Propagation in Three-Phase Laminated Composites at High Exciting Frequencies (77-WA/HT-10) **HT 281**
Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) **I 210**
Measurements of Transition Boiling Data for Water Under Forced Convective Conditions (TN) **HT 382**
A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) **L 110**
Natural Convection Heat Transfer in Beds of Inductively Heated Particles **HT 78**
Radiation From a Methanol Furnace (77-HT-14) **HT 247**
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) **P 439**
Simultaneous Measurements of Velocity and Temperature in Nonisothermal Flows **HT 340**

Temperature Profiles

On the Analogy Between the Calorimeter Problem and Some Granulate-Fluid Exchange Processes **HT 319**
Combined Conductive and Radiative Heat Transfer in an Absorbing and Scattering Infinite Slab (77-HT-50) **HT 98**
Combined Conduction-Radiation Heat Transfer Through an Irradiated Semi-transparent Plate (TN) **HT 169**
An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition from Laminar Forced Convection to Turbulent Free Convection over a Horizontal Isothermally Heated Plate **HT 429**
Experiments on the Onset of Longitudinal Vortices in Horizontal Blasius Flow Heated from Below **HT 71**
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) **L 261**; (D) **L 269**; (AC) **L 270**
A Model for Flame Propagation in Low Volatile Coal Dust-Air Mixtures (77-HT-18) **HT 105**
Prediction of Temperature Profiles in Fluid Bed Boilers (76-HT-66) **HT 508**

Temperature Ranges

Gas Flow Through Cracks **F 453**
Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) **L 404**; (D) **L 418**; (AC) **L 417**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) **L 418**
Nonshrinking Heat and Acid-Resistant Hydrothermal Cements for Use in Oil and Gas Wells (77-Pet-27) **PVT 34**

Temperature Reduction

Reducing the Temperature at Tool-Chip-Work Contact by Changing the Effective Thermal Conductivity of the Tool (TB) **I 387**

Temperature Variations
Analytic Solutions to the Heat Equation Involving a Moving Boundary with Applications to the Change of Phase Problem (the Inverse Stefan Problem) **HT 300**
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) **P 520**
Temperatures
The Preparation of Calcium Superoxide at Subambient Temperatures and Pressures (77-ENAs-55) **I 26**
Tempered Steel
The Effect of Plastic Strain Followed by Aging on the Torsion Fatigue Resistance of Quenched and Tempered 4340 Steel (TB) **MT 219**
J_{IC} Determination Using the Proposed Standard C-Shaped Specimen (78-Mat-6) **MT 248**
Tennyson, R. C. Buckling of Short Cylinders Under Combined Loading **AM 574**
Tensile Behavior
High Temperature Properties and Constitutive Equations for 1 Cr-½ Mo Steel (77-PVP-50) **PVT 246**
Tensile Fracture
A Reexamination of Miklowitz-Kolsky Model (BN) **AM 218**
Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**
Tensile Parameters
Cryogenic Tensile, Fatigue, and Fracture Parameters for a Solution-Annealed 18 Percent Nickel Maraging Steel **MT 189**
Tensile Properties
Notch Effects, Stress State, and Ductility **MT 348**
Tensile Response
An Analysis of High Temperature Metal Creep—Part I: Experimental Definition of an Alloy **MT 363**
Tensile Strength
Contrasting Fracture Models For Granite Under Dynamic Loading **MT 287**
Tensile Stress
The Biomechanical Function of the Collagen Fibril Ultrastructure of Articular Cartilage **BE 105**
Tension
Angled Elliptic Notch Problem in Compression and Tension **AM 258**
Concerning a Creep Surface Derived From a Multiple Integral Representation for 304 Stainless Steel Under Combined Tension and Torsion (78-WA/APM-11) **AM 773**
Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-WA/APM-3) **AM 507**
An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**
Finite Extension of an Elastic Strand With a Central Core (78-WA/APM-7) **AM 852**
Fracture Under Combined Loads by Maximum-Energy-Release-Rate Criterion **AM 553**
Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**
Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **MT 421**
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) **P 576**
Stress Concentration in a Stretched Cylindrical Shell With Two Elliptical Holes (78-WA/APM-18) **AM 839**
Surface Ribbing of a Thin Viscous Fluid Film Emerging From a Spreader or Roller **L 462**
Tension Bending
Stress-Concentration Factors for a Countersunk Hole in a Flat Bar in Tension and Transverse Bending (DDM) **AM 929**
Tension Field
The Interface Crack in a Shear Field **AM 287**
Tension Strength
Further Developments in Anisotropic Plasticity **MT 294**
Tension Tests
Deformation of Polymers During Hydrostatic Extrusion **PVT 400**
Terminal Homing Missile System
Some Sufficient and Some Necessary Conditions for the Stability of Multivariable Systems **DS 214**
Termuehlen, H. Flow Excited Vibrations in High-Pressure Turbines (Steam Whirl) **P 219**
Terreault, B. Helium Blistering in Metals (78-Mat-5) **MT 411**
Tesar, D. Model Formulation of Complex Mechanisms With Multiple Inputs: Part I—Geometry (77-WA/DE-9) **MD 747**; Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) **MD 761**; The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) **MD 762**
Test Development
Development of Test and Analysis Plan for Mechanical Component Reliability (GR) **MD 204**
Tetars, G. *(author)* Mechanik der Polymer Werkstoffe (BR) **AM 456**
Texas Lignite
An Assessment of Overburden Stability in the In-Situ Gasification of Texas Lignite **PVT 285**
Tezak, E. G. Nonlinear Analysis of the Lateral Response of Columns to Periodic Loads (77-DET-69) **MD 651**; (D) (AC) **MD 659**
Textile Spindles
One Stage and Two Stage Vibration Isolators as Applied to High Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) **MD 33**
Thawed Permafrost
Loading Mechanisms in Thawed Permafrost Around Arctic Wells (D) **PVT 320**
Thayer, W. J. A Brief History of Electrohydraulic Servomechanisms **DS 110**
Theocaris, P. S. The End-Values of Distributed Loads in Half Planes by Caustics **AM 313**; Experimental Solution of Flexed Plates by the Method of Caustics (Er) **AM 965**
Theofanous, T. G. Experiments and Universal Growth Relations for Vapor Bubbles With Microlayers **HT 41**
Theoretical Dynamic Analyses Validation
A Survey of Rail Vehicle Testing for Validation of Theoretical Dynamic Analyses **DS 238**
Theoretical Mechanics
Trends in Applications of Pure Mathematics to Mechanics (BR) **AM 456**
Thermal Analysis
Two Temperture Gradients Model for Friction Failure (77-Lub-28) **L 479**; (D) **L 484**; (AC) **L 485**
Thermal Analysis Procedure
A Finite Element Thermal Analysis Procedure for Several Temperature-Dependent Parameters (TN) **HT 551**
Thermal Anneal
A Description of a Study for the Thermal Anneal of Neutron-Embrittled Reactor Vessel Materials (78-Mat-19) **MT 272**
Thermal Barrier System
Transient Analysis of a Permeable Thermal Barrier System (77-DE-24) **MD 127**
Thermal Behavior
Frictional and Thermal Behaviors of Sliding-Rolling Concentrated Contacts (77-Lub-7) **L 121**
Thermal Boundary Conditions
Effect of Circumferentially Nonuniform Heating on Laminar Combined Convection in a Horizontal Tube **HT 63**
Thermal Boundary Layer
Flow and Heat Transfer in Convectively Cooled Underground Electric Cable Systems: Part 2—Temperature Distributions and Heat Transfer Correlations (76-WA/HT-42) **HT 36**
Thermal Buckling
Thermal Buckling of an Annular Plate With Axisymmetric Initial Deflection (BN) **AM 693**
Thermal Conductivity
The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact- Part I: Fully Flooded Conditions **L 346**
Reducing the Temperature at Tool-Chip-Work Contact by Changing the Effective Thermal Conductivity of the Tool (TB) **I 387**
Thermal Control System
A Portable Personal Cooling System for Mine Rescue Operations (77-ENAs-53) **I 53**
Thermal Convection
Heat Transfer Phenomenology of a Hydrodynamically Unstable Melting System **HT 305**
Partial Spectral Expansions for Problems in Thermal Convection **HT 435**
Thermal Damage
Thermal Damage and Rail Load Stresses in a 33-Inch Railroad Car Wheel (77-WA/RT-2) **I 363**
Thermal Diffusion
A Mixture Theory for Quasi-One-Dimensional Diffusion in Fiber-Reinforced Composites **HT 128**
Thermal Diffusivity
Thermal Diffusivity of Dispersed Materials **HT 720**
Thermal Effects
On the Thermal Effects in a Warp Beam (A Wound-Yarn-Package) (77-TEX-3) **I 8**
Thermal Electric Power Systems
Power System Economics: On Selection of Engineering Alternatives (77-JPGC-Pwr-7) **P 333**; (D) **P 343**; (AC) **P 346**
Thermal Energy Storage
Transient Response of a Hollow Cylindrical-Cross-Section Solid Sensible Heat: Storage Unit—Single Fluid (TN) **HT 737**
Thermal Energy Transport
Pseudo Bond Graphs for Thermal Energy Transport **DS 155**
Thermal Expansion
Convection in a Porous Medium Heated from Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient (77-HT-56) **HT 449**
The Thermoelastic Patch Contact Problem for Large Peclet Number (77-Lub-32) **L 65**
Thermal Fragility
Experimental Observations on the Thermal Fragility of Erythrocytes Including the Effects of Storage and Anticoagulant **BE 223**
Thermal Gradients
Crack Growth Behavior in Alloy 718 at 425°C (78-Mat-4) **MT 381**
Thermal Injury
Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation **BE 49**
Therapeutic Effects of Postburn Cooling **BE 149**
Thermal Instability
Thermal Instability of a Volumetrically-Heated Pool With Phase Change and a Free Upper Surface (TN) **HT 376**
Thermal Load
Creep Relaxation of a Beam of General Cross Section Subjected to Mechanical and Thermal Loads (TB) **MD 626**
Thermal Performance
Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) **P 497**
The Effect of Longitudinal Heat Conduction on Crossflow Heat Exchanger **HT 346**
Performance Analysis of a Pancake Absorber-Helical Heat Exchanger for a Solar Concentrator **P 178**
Thermal Performance Deterioration
Thermal Performance Deterioration in Crossflow Heat Exchanger due to the Flow Nonuniformity **HT 580**
Thermal Properties
Motion of a Large Dusty Buoyant Thermal With a Vortex Ring (78-WA/APM-8) **AM 711**
Thermal Properties of Tungsten SRM'S 730 and 799 **HT 330**
Thermal Response
Thermal Response of Slabs Subjected to Non-Symmetric Convective Heat Transfer (78-DE-8) **MD 706**
Thermal Shock Resistance
Fracture Strength and Thermal Shock Resistance of Thick And Thin-Wall Magnesium-Aluminum-Silicate Ceramic Heat Regenerators (77-GT-98) **P 136**
Thermal Storage Exchanger
Transient Behavior of a Solid Sensible Heat Thermal Storage Exchanger **HT 148**
Thermal Storage Tank
Thermocline Degradation in a Packed Bed Thermal Storage Tank (TN) **HT 371**
Thermal-Stress Ratcheting
An Experimental Study of Progressive Strain Growth Due to Thermal-Stress Ratcheting **MT 150**
Thermal Stress Responses
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**
Thermal Stresses
Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) **P 704**
Reliability and Durability of Ceramic Regenerators in a Gas Turbine (77-GT-59) **P 73**
Stresses in a Solidifying Semitransparent Cylindrical Medium by Conduction and Radiation (BN) **AM 946**
Thermal Stresses From a Moving Band Source of Heat on the Surface of a Semi-Infinite Solid (77-WA/PROD-26) **I 43**
Thermal Stresses in a Submerged-Arc Welded Joint Considering Phase Transformations **MT 356**
A Three-Dimensional Treatment of Transient Thermal

Stresses in a Circular Cylinder Due to an Arbitrary Heat Supply **AM 817**

Thermally Activated Component
Flank Wear Model of Cutting Tools Using Control Theory (77-WA/PROD-20) **I 103**

Thermocline Degradation
Thermocline Degradation in a Packed Bed Thermal Storage Tank (TN) **HT 371**

Thermodynamic Heat Engine Cycle
A Novel Absorption Regeneration-Thermodynamic Heat Engine Cycle **P 566**

Thermodynamic Optima
Two Thermodynamic Optima in the Design of Sensible Heat Units for Energy Storage **HT 708**

Thermodynamics
Analytical Modeling of Helical Screw Turbines for Performance Prediction **P 482**
Effect of Carbon Monoxide on the Reaction of Hydrogen Sulfide and Calcium Oxide (77-WA/APC-6) **P 520**
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) **MD 599**
A Parametric Study of Hot Water Storage for Peak Power Generation **P 229**
On the Growth of Steam Droplets Formed in a Laval Nozzle Using Both Static Pressure and Light Scattering Measurements **F 311**
The Second Law of Thermodynamics and Cyclic Processes **AM 487**
Steam Bottoming Plants for Combined Cycles **P 203**
The Temperature Dependence of Surface Tension of Pure Fluids **HT 324**
A Thermodynamic Model of Biological Body: Muscle Mechanics **BE 14**
A Thermodynamic Study of Heating with Geothermal Energy (77-WA/Ener-1) **P 503**
On the Thermodynamic Superheat Limit for Liquid Metals and Its Relation to the Leidenfrost Temperature (TN) **HT 734**
Use of Explosives to Enhance Power of a New Design of Pile Hammer (77-Pet-80) **PVT 194**
The Use of Liquid Natural Gas as Heat Sink for Power Cycles (77-GT-19) **P 169**

Thermoelastic Analysis
Thermoelastic Analysis of Nonaxisymmetrically Heated Thick Cylindrical Shells (78-PVP-1) **PVT 107**

Thermoelastic Patch Contact Problem
The Thermoelastic Patch Contact Problem for Large Peclet Number (77-Lub-32) **L 65**

Thermoelastic Solids
On the Symmetry and Stability of Thermoelastic Solids **AM 740**

Thermoelasticity
Thermoelastic Effects in Frictionally Heated Line Contact of Slablike Bodies (77-Lub-21) **L 136**

Thermo-Fluid Processes
Approximation of Fundamental Equations for Finite-Dimensional Modeling of Thermo-Fluid Processes (TB) **P 722**

Thermofluid Systems
A Bond Graph Modeling Philosophy for Thermofluid Systems **DS 70**

Thermography
Thermographic Determination of Fatigue Damage **MT 200**

Thermohydrodynamic Analysis
Thermohydrodynamic Analysis for Laminar Flow Journal Bearing (TB) **L 510**

Thermomechanics
An Introduction to Thermomechanics (BR) **AM 966**

Thermometry Techniques
Assessment of Convective Heat Loss From Humans in Cold Water (77-WA/Bio-5) **BE 7**

Thermonuclear Fusion
Assessment of Surface-Heating Problems in Laser-Fusion Reactors **HT 311**
Fusion Energy (77-WA/NE-1) **P 399**

Thermophysical Properties
The Effect of the London-Van Der Waals Dispersion Force on Interline Heat Transfer **HT 155**

Thermosyphon Models
Thermosyphon Models for Downhole Heat Exchanger Applications in Shallow Geothermal Systems **HT 713**

Thick-Wall Regenerator Cores
Fracture Strength and Thermal Shock Resistance of Thick And Thin-Wall Magnesium-Aluminum-Silicate Ceramic Heat Regenerators (77-GT-98) **P 136**

Thick-Walled Cylinder
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) **AM 281**

Thick-Walled Spherical Shell
Determination of Transient Responses of a Thick-Walled Spherical Shell by the Ray Theory **AM 114**

Thickness Variation
Natural Frequencies of Clamped Orthotropic Rectangular Plates With Varying Thickness (78-WA/APM-9) **AM 871**

Thin Bar
Impact Buckling of Thin Bar Via Monte Carlo Method **AM 586**

Thin Cylindrical Bodies
The Acceleration of Thin Cylindrical Bodies in a Viscous Fluid **AM 1**

Thin Films
Ion-Plated Films for Anti-Wear Applications **L 129**

Thin Flat Plate
Laminar Shear Layer Due to a Thin Flat Plate Oscillating With Zero Mean Velocity (78-WA/Fe-16) **F 367**

Thin Layer Surface Inhomogeneity
The Effect of a Thin Layer Surface Inhomogeneity on Dynamic Surface Response **AM 95**

Thin Liquid Films
The Dynamics of Thin Liquid Films in Rotating Tubes: Approximate Analysis **F 187**

Thin Needles
Forced Convection Heat Transfer from Nonisothermal Thin Needles **HT 358**

Thin Plates
Influence of Elasto-Plastic Transition on the Inelastic Response of Beams and Plates **AM 521**

Thin Shell Theory
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) **MD 183**

Thin-Walled Beams
Influence of Secondary Effects of Free Torsional Oscillations of Thin-Walled Open Section Beams (BN) **AM 681**

Thin Walled Tube
On the Eversion of a Superplastic, Thin Walled Tube (TB) **MT 428**
Thomas, D. L. *(author)* Investigation of a 30,000-RPM Turbine-Speed Hydraulic Pump (GR) **MD 206**
Thomas, L. A Simple Integral Approach to Turbulent Thermal Boundary Layer Flow (TN) **HT 744**
Thomas, L. C. A Surface Rejuvenation Model for Turbulent Heat Transfer in Annular Flow With High Prandtl Numbers **HT 92**
Thomas, W. C. Linearized Stability Analysis of Film Condensation **HT 629**
Thompson, P. A. Exact and Approximate Equations for Real-Fluid Isentropic Flow **F 413**
Thomason, P. F. Riemann-Integral Solutions for the Plastic Slip-Line Fields Around Elliptical Holes (BN) **AM 678**
Thomason, S. B. The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**
Thompson, J. C. An Exact Solution for the Superseismic Stage of Dynamic Contact Between a Punch and an Elastic Body (Er) **AM 459**
Thompson, N. J. Heterogeneity of Deformation in Cold-Rolled Brass (77-WA/PROD-29) **I 217**
Thompson, T. W. An Assessment of Overburden Stability in the In-Situ Gasification of Texas Lignite **PVT 285**
Thompson W. E. Fluid Dynamic Excitation of Centrifugal Compressor Rotor Vibrations (77-FE-22) **F 73**
Thomson, W. T. *(reviewer)* The Component Element Method in Dynamics (BR) **AM 235**
Thornton, E. A. A Finite Element Thermal Analysis Procedure for Several Temperature-Dependent Parameters (TN) **HT 551**
Thornton, W. A. Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) **MD 319**

Three-Dimensional Analysis
Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) **PVT 134**

Three-Dimensional Cutting
Analytical Prediction of Three Dimensional Cutting Process Part 1: Basic Cutting Model and Energy Approach (77-WA/PROD-9) **I 222**; Part 2: Chip Formation and Cutting Force With Conventional Single-Point Tool (77-WA/PROD-10) **I 229**; Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/PROD-11) **I 236**

Three-Dimensional Elasticity Solution
Three-Dimensional Elasticity Solution and Edge Effects in a Spherical Dome (D) **AM 700**; (AC) **AM 701**

Three-Dimensional Kinematics
Instantaneous Invariants in Three-Dimensional Kinematics **AM 409**

Three-Dimensional Propeller Wakes
An Experimental Study of Three-Dimensional Characteristics of Propeller Wakes Under Stalling Conditions (D) **F 141**; (AC) **F 142**

Three-Dimensional Roughness
An Average Flow Model for Determining Effects of Three-Dimensional Roughness on Partial Hydrodynamic Lubrication (77-Lub-17) **L 12**

Three-Dimensional Velocity Field
Prediction of the Three-Dimensional Velocity Field of a Deflected Turbulent Jet (D) **F 249**; (AC) **F 250**

Three-Dimensional Wave Propagation
Three-Dimensional Wave Propagation in a Cracked Elastic Solid **AM 807**

Three-Phase Fault
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) **MD 630**

Three-Shaft KTT System
Three-Shaft Automotive Turbine-Transmission Systems of the KTT Type—Performance and Features (77-GT-94) **P 95**

Through-Flow Calculations
Experimental Study of Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**

Through-Thickness Ductility
Evaluation of Steel Plate Quality by Through Thickness Testing (77-Pet-28) **PVT 77**

Through-Tube Heat Exchangers
Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) **P 380**; (D) (AC) **P 389**

Thrust Bearing
Design Charts for Arbitrarily Pivoted, Liquid-Lubricated, Flat-Sector-Pad Thrust Bearing (77-Lub-24) **L 279**; (D) **L 285**; (AC) **L 286**
Flow in Finite-Width, Thrust Bearings Including Inertial Effects: Part I—Laminar Flow **L 330**; Part II—Turbulent Flow **L 339**
Squeeze Film Flow Between Arbitrary Two-Dimensional Surfaces Subject to Normal Oscillations **L 316**
A Study of the Stability of an Externally-Pressurized Gas-Lubricated Thrust Bearing With a Flexible Damped Support **L 364**

Thrust Forces
Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) **MD 92**
Thurston, G. A. Roots of Lambda Matrices (78-WA/APM-4) **AM 859**
Tichy, J. A. An Investigation Into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) **L 56**; Squeeze Film Flow in Arbitrarily Shaped Journal Bearings Subject to Oscillations **L 323**; Squeeze Film Flow Between Arbitrary Two-Dimensional Surfaces Subject to Normal Oscillations **L 316**
Tielking, J. T. Axisymmetric Bending of Annular Plates (78-WA/APM-27) **AM 834**
Tien, C. L. Infrared Mean Absorption Coefficients of Luminous Flames and Smoke **HT 235**; Laminar Free Convection Heat Transfer through Horizontal Duct Connecting Two Fluid Reservoirs at Different Temperatures (TN) **HT 725**; Laminar Natural Convection Heat Transfer in a Horizontal Cavity with Different End Temperatures **HT 641**; Natural Convection in a Horizontal Porous Medium Subjected to an End-to-End Temperature Difference **HT 191**; *(reviewer)* Review of Fundamental Principles of Heat Transfer (BR) **AM 235**

Tilt Stiffness
Analysis of Dynamic Tilt Stiffness and Damping Coefficients of Externally Pressurized Porous Gas Journal Bearings **L 359**

Tilting Pad Bearings
A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) **MD 165**

Time Delayed Systems
Analysis and Design of Machine Tool Chatter Control Systems Using the Regeneration Spectrum **DS 191**

Time-Dependent Inelastic Deformation
Numerical Analysis of Time-Dependent Inelastic Deformation in Metallic Media Using the Boundary-Integral Equation Method **AM 785**
Time-Domain Performance Criteria
The Use of Sensitivity Functions to Match Matrix Transfer Functions to Time-Domain Performance Criteria **DS 187**
Time Integration Procedures
Computational Aspects of Time Integration Procedures in Structural Dynamics: Part 1: Implementation **AM 595**; Part 2: Error Propagation **AM 603**
Time-Optimal Control
Quasi-Time-Optimal Feedback Control of Some Fifth-Order Systems **DS 201**
Time-Scales
Transitory Stall Time-Scales for Plane-Wall Air Diffusers (TB) **F 133**
Time Series Analysis
Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/PROD-31) **I 181**
Time-Temperature Parameters
On the Minimum-Commitment Method for Correlation of Creep-Rupture Data (TB) (78-Mat-18) **MT 333**
On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) **MT 319**
Timing Belts
Load Distribution in Timing Belts (77-DET-100) **MD 208**
Time Varying Systems
Stored Response Modeling **DS 132**
Timoshenko Shear Coefficient
On the Variation of Timoshenko's Shear Coefficient With Frequency (BN) **AM 695**
Timoshenko's Solution
Strain Energy Minimization Leading to Timoshenko's Clamped Rectangular Plate Solution (BN) **AM 948**
Ting, T. C. Reflection of Acceleration Waves in an Elastic-Plastic Medium **AM 51**; *(reviewer)* Stress Waves in Nonelastic Solids (BR) **AM 970**
Tip Clearances
Forced Convection Heat Transfer from a Shrouded Fin Array with and without Tip Clearance **HT 572**
Tipei, N. Flow Characteristics and Pressure Head Build-Up at the Inlet of Narrow Passages (77-Lub-23) **L 47**
Titanium Alloys
The Stress Controlled High Cycle Fatigue Response of a Metastable Beta Titanium Alloy as Influenced by Several Test Variables (TB) **MT 426**
Wear of Titanium and Titanium Alloys Under Conditions of Rolling Stress **L 199**
Tiwari, S. N. Accurate Spectral Modeling for Infrared Radiation (77-HT-69) **HT 240**
Tlusty, J. Chipping and Breakage of Carbide Tools **I 403**
Tobe, T. Bending of Slub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) **MD 374**
Tobler, R. L. Cryogenic Tensile, Fatigue, and Fracture Parameters for a Solution-Annealed 18 Percent Nickel Maraging Steel **MT 189**
Tolerance Constraints
A Method for Optimal Tolerance Selection (D) (AC) **I 399**
Tomita, N. Determining the Coefficient of Friction for Rolling Disks (77-Lub-11) **L 25**
Tomizuka, M. Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reverse Reaction, Overshoot, and Oscillatory Processes (77-WA/Aut-12) **DS 50**
Tonneson, J. Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) **L 389**; (D) (AC) **L 377**; Some Experiments on Instability of Rotors Supported in Fluid-Film Bearings (77-DET-23) **MD 147**
Tool Geometry
Analytical Prediction of Three Dimensional Cutting Process Part 2: Chip Formation and Cutting Force With Conventional Single-Point Tool (77-WA/PROD-10) **I 229**
Tool Joints
Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) **PVT 172**
Tool Life
Data Dependent Systems Approach to Stochastic Tool Life and Reliability (77-WA/PROD-33) **I 318**
Flank Wear Model of Cutting Tools Using Control Theory (77-WA/PROD-20) **I 103**
Tool Life Distributions
Load Distribution in Timing Belts (77-DET-100) **MD 208**
Tool Life Distribution: Part 3—Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) **I 193**; Part 4—Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) **I 201**
Tool Life Experiments
An Experimental Strategy for Designing Tool Life Experiments (77-WA/PROD-24) **I 441**
Tool Life Variations
Machining Economics and Tool Life Variation—Part 1: Basic Considerations and Their Practical Implications (77-WA/PROD-12) **I 393**; Part 2: Application to Models for Machining Processes (77-WA/PROD-13) **I 397**; (D) **I 401**; (AC) **I 402**
Tool Wear
Chipping and Breakage of Carbide Tools **I 403**
Tooth Profiles
Design and Manufacture of High Precision Gears of Large Diameter for Large Telescopes (77-DET-174) **MD 723**
Tooth Root Fillet
The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) **MD 417**
Tooth Root Stresses
Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) **MD 69**
Tooth Spacing Errors
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-68) **MD 715**
Tooth Surfaces
On a Diffusion Wear Model for High Speed Steel Tools **L 436**
Lattice Contact In Generated Spiral Bevel Gears (77-DET-63) **MD 42**
A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) **MD 451**
Top Motions
A Realistic Solution of the Symmetric Top Problem (78-WA/APM-20) **AM 903**
Topography
Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) **MD 16**
Torikoshi, K. Experimental Study on the Effect of Orientation of Heating Circular Plate on Film Boiling Heat Transfer for Fluorcarbon Refrigerant R-11 **HT 624**
Torisaki, T. Design and Development of a High-Pressure Combustor for Aero-Gas-Turbines (77-GT-96) **P 129**
Torque
A Computer-Aided Feel Cam Design (TB) **MD 604**
The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) **MD 574**
Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy **P 525**
Torque Converter
Design and Development of a Segmented Magnet Homopolar Torque Converter (GR) **MD 205**
Torquewhirl
Torquewhirl—A Theory To Explain Nonsynchronous Whirling Failures of Rotors With High-Load Torque **P 235**
Torsion
Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structures (77-DET-64) **MD 279**
Concerning a Creep Surface Derived From a Multiple Integral Representation for 304 Stainless Steel Under Combined Tension and Torsion (78-WA/APM-11) **AM 773**
Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-WA/APM-3) **AM 507**
Stress-Strain Analysis of Cyclic Plastic Bending and Torsion **MT 157**
Torsion Fatigue Resistance
The Effect of Plastic Strain Followed by Aging on the Torsion Fatigue Resistance of Quenched and Tempered 4340 Steel (TB) **MT 219**
Torsion Strength
Analysis of Leg Loading in Snow Skiing **DS 177**
Torsion Tests
Bursting Pressure as the Basis for Cylinder Design **PVT 374**
Torsional Flutter
Torsional Flutter in Stalled Cascade **P 317**
Torsional Frequencies
Lower Bounds for Gravest Torsional Frequencies (BN) **AM 197**
Torsional Oscillations
Influence of Secondary Effects on Free Torsional Oscillations of Thin-Walled Open Section Beams (BN) **AM 681**
Torsional Rigidity
Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-86) **MD 274**
Torsional Vibrations
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) **MD 537**
Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) **MD 528**
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) **MD 644**
Townsend, D. P. Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) **MD 54**; Study of Lubricant Jet Flow Phenomena in Spur Gears—Out of Mesh Conditions (77-DET-104) **MD 61**; (D) (AC) **MD 68**
Tracer Concentration Profile
Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**
Tracer Gas
Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**
Track Buckling
Determination of Admissible Temperature Increases to Prevent Vertical Track Buckling **AM 565**
Traction Behavior
Traction Behavior in Sliding ehl Contacts (77-Lub-5) **L 115**
Traction Effect
Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) **L 156**; (D) (AC) **L 165**
Tractor-Trailer Trucks
A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) **F 443**
A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) **F 434**
A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) **F 439**
Traffic Volume
Fatigue Strength and Maintenance of the Wheel-Axle Assembly for the Japanese Fast Train (Shinkansen) **MT 227**
Trailer Dynamics
Wheel Rotations and Trailer Dynamics (BN) **AM 206**
Transducers
Analysis of Leg Loading in Snow Skiing **DS 177**
A Novel Pressure Transducer Using Mechanical Resonance **DS 83**
Response of a Realistic Human Head-Neck Model to Impact **BE 25**
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) **P 664**; (D) (AC) **P 675**
Transfer Functions
Identification of the Dynamic Characteristics of a Bench-Type Automotive Seat for the Evaluation of Ride Quality **DS 42**
The Use of Sensitivity Functions to Match Matrix Transfer Functions to Time-Domain Performance Criteria **DS 187**
Transfer Matrix Method
The Riccati Transfer Matrix Method (77-DET-32) **MD 297**
Transform Solutions
One Dimensional, Linear Dynamic Electromechanical Responses of Ferroelectric Ceramics **AM 749**
Transformation Method
A Transformation Method With Two Parameters for Constrained Optimal Control Problems **DS 124**
Transformation Procedure
On Gyrobondgraphs and Their Uses **DS 76**
Transient Analysis
Implicit-Explicit Finite Elements in Transient Analysis: Implementation and Numerical Examples **AM 375**
Implicit-Explicit Finite Elements in Transient Analysis: Stability Theory **AM 371**
Transient Analysis of a Permeable Thermal Barrier System (77-DE-24) **MD 127**
Transient Behavior
Transient Behavior of a Solid Sensible Heat Thermal Storage Exchanger **HT 148**
Transient Conduction
Transient Conduction in a Slab With Temperature Dependent Thermal Conductivity (TN) **HT 172**

Transient Dynamics Excitation
Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) **MD 311**
Transient Flow Measurements
First-Order Pump Surge Behavior (77-WA/FE-12) **F 459**
Transient Forced Oscillations
Canine Pulmonary Input Impedance Measured by Transient Forced Oscillations **BE 67**
Transient Free Convection
Transient Free Convection from a Suddenly Heated Horizontal Wire **HT 423**
Transient Heat Transfer
Analytical Solutions to the Problem of Transient Heat Transfer in Living Tissue **BE 202**
Transient Modal Rotordynamic Models
Residual-Flexibility Corrections for Transient Modal Rotordynamic Models (77-DET-31) **MD 251**
Transient Motion
Transient Motion of an Elastic Shell of Revolution in an Acoustic Medium **AM 149**
Transient Natural Convection
Leading Edge Effects in Transient Natural Convection Flow Adjacent to a Vertical Surface (TN) **HT 731**
Transient Responses
Determination of Transient Responses of a Thick-Walled Spherical Shell by the Ray Theory **AM 114**
Dynamics of Viscoelastic Plate With Curved Boundaries of Arbitrary Shape **AM 629**
Experiments on the Transient Response of Oil-Film Dampers (77-GT-31) **P 30**
Optimum Design of Control System Compensators **DS 140**
Transient Response of Continuous Elastic Structures With Viscous Damping (78-WA/APM-5) **AM 877**
Transient Response of a Rotor in Damped Bearings (77-DET-21) **MD 257**
Transient Temperature Profile
Transient Temperature Profile of a Hot Wall Due to an Impinging Liquid Droplet (TN) **HT 167**
Transient Thermal Analysis
Transient Thermal Analysis of Epoxy-Impregnated Superconducting Windings in Linearly Ramped Fields (77-HT-77) **HT 702**
Transient Thermal Conduction
Influence of System Pressure on Microlayer Evaporation Heat Transfer **HT 49**
Transient Thermal Stresses
A Three-Dimensional Treatment of Transient Thermal Stresses in a Circular Cylinder Due to an Arbitrary Heat Supply **AM 817**
Transit Systems
Optimal Control of On-Board and Station Flywheel Storage for Rail Transit Systems **DS 284**
A State-Constrained Approach to Vehicle-Follower Control for Short Headway Automated Transit Systems **DS 291**
Transit Vehicles
Effects of Jerk Limiting on the Stability of Automated Transit Vehicles **DS 298**
Steering Controller Design For Automated Guideway Transit Vehicles **DS 1**
Transition Behavior
Transition Behavior of a Blasius-Type Boundary Layer Subjected to Uniform Blowing or Suction (BN) **AM 456**
Transition Speeds
The Coupled Response of a Dynamic Element Riding on a Continuously Supported Beam **AM 864**
Transition Temperature
Comparison of Dynamic Tear and Charpy-V-Notch Impact Properties of Plate Steels **MT 204**
Transitory Stall
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**
Transmissibility
Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structures (77-DET-84) **MD 279**
On the Transmissibility of Short Porous Journal Bearings (77-Lub-26) **L 296**; (D) **L 302**; (AC) **L 303**
Transmission
Rotational Vibration With Backlash: Part 1 (77-DET-105) **MD 363**
Transmission Angle Control
A General Theory for Synthesizing Crank-Type Four-Bar Function Generators With Transmission Angle Control **AM 415**
Transmission Design
FORD/ERDA Continuously Variable Transmission. Phase I. Transmission Design. Progress Report No. 9, January 1-March 31, 1976 (GR) **MD 203**
Transmission Design Synthesis
Design Synthesis of a Multi-Speed Machine Tool Gear Transmission Using Multiparameter Optimization (77-DET-173) **MD 303**
Transmission Systems
Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**
Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) **DS 24**
Transonic Axial Compressor Rotor
Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**
Transonic Flow
Throughflow Calculations for Transonic Axial Flow Turbines **P 212**
Transonic Thin-Airfoil
Unsteady Transonic Thin-Airfoil Theory for Power-Law Upwash (BN) **AM 440**
Transpired Turbulent Boundary Layers
The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) **F 10**; (D) **F 15**; (AC) **F 16**
Transport Parameters
Derivation of Turbulent Transport Parameters in Isotropic Turbulence (D) **F 139**; (AC) **F 140**
Transport Systems
Magnetic Suspension for Low-Speed Vehicles **DS 333**
Transportation Research
Transportation Research and the Role of Dynamic Systems, Measurement, and Control (F) **DS 233**
Transverse Bending
Stress-Concentration Factors for a Countersunk Hole in a Flat Bar in Tension and Transverse Bending (DDM) **AM 929**
Transverse Load
Deflection of a Very Flexible Spinning Disk Due to a Stationary Transverse Load **AM 636**
Transverse Motion Response
Wide-Band Random Vibration of Circular Plates (77-DET-97) **MD 690**
Transverse Oscillations
Heat Transfer from a Cylinder Oscillating in a Cross-Flow **HT 684**
Transverse Shear Deformation
Bending of Stub Cantilever Plate and Some Applications to Strength of Gear Teeth (77-DET-48) **MD 374**
Transverse Stream
Experimental Study of a Solid-Gas Jet Issuing Into a Transverse Stream (78-WA/FE-2) **F 333**; (D) **F 338**; (AC) **F 339**
Transverse Velocity
Nonparallel Effects on the Stability of Jet Flows (78-WA/APM-16) **AM 717**
Trapezoidal Rule
Computational Aspects of Time Integration Procedures in Structural Dynamics—Part 2: Error Propagation **AM 603**
Trapezoidally Corrugated Plates
Elastic Buckling of Infinitely Long Trapezoidally Corrugated Plates in Shear **AM 579**
Treia, M. Early Response of Hot Water to Sudden Release from High Pressure **HT 473**
Triangular Elements
A Slip Model for Finite-Element Plasticity **AM 527**
Triantafyllidis, N. Void Growth and Local Necking in Biaxially Stretched Sheets **MT 164**
Triaxial Stress
Notch Effects, Stress State, and Ductility **MT 348**
Tribology
The Economic Impact of Wear on Society (Op) **L 145**
Men of Tribology **L 2**; **L 148 153**; **L 311, 313**; **L 445, 457**
Tribology, A Systems Approach to the Science and Technology of Friction, Lubrication and Wear (BR) **MT 336**; (BR) **L 513**
Wear Research and Development (Op) **L 449**
Triple Velocity Correlation
An Evaluation of Mean Reynolds Stress Turbulence Models: The Triple Velocity Correlation **F 47**
Trippett, R. J. A High-Speed Rolling-Element Bearing Loss Investigation (77-GT-86) **P 45**; (AC) **P 46**
Troutman, S. J., Jr. Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) **BE 1**
Truck Geometry Deviations
A Parametric Study to Relate Speed to Permissible Combinations of Track Geometry Deviations **DS 252**
Truck Load Data
Summarization and Comparison of Freight Car Truck Load Data (77-WA/RT-3) **I 60**
Truck Modifications
High-Speed Lateral Stability of a Freight Car Related to Modifications of Conventional Trucks (77-WA/RT-4) **I 49**
Truck Suspension Systems
Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) **I 311**; (D) **I 316**; (AC) **I 317**
Trucks
Graphical Output-Oriented Computer Model of a Railroad Freight Car With Conventional Trucks (77-RT-11) **I 67**
Trulit, J. B. Three-Dimensional Versus Axisymmetric Finite-Element Analysis of a Cylindrical Vessel Inlet Nozzle Subject to Internal Pressure—A Comparative Study (78-PVP-6) **PVT 134**
Truman, C. R. Frictional Moment of Flow Between Two Concentric Spheres, One of Which Rotates (D) **F 246**; (AC) **F 247**; Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**
Truncation Method
Stationary Response of a Randomly Parametric Excited Nonlinear System (78-WA/APM-13) **AM 910**
Trunnion Design
Design and Fatigue Testing of Integral Armored Servo Actuator Modified Trunnion (GR) **MD 204**
Tsai, S. S. Multi-Dimensional Radiative Transfer in Nongray Gases—General Formulation and the Bulk Radiative Exchange Approximation (77-HT-51) **HT 486**
Tsang, S. H. L. Simulation of Cardiovascular Dynamics With the All-Pneumatic Artificial Ventricle System as a Replacement of the Myocardial Function **BE 35**
Tseng, M. M. A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (77-WA/Prod-19) **I 303**; (D) **I 309**; (AC) **I 310**
Tsujino, T. The Behavior of Gas Bubbles in the Casson Fluid **AM 37**
Tsukizoe, T. Ion-Plated Thin Films for Anti-Wear Applications **L 129**
Tube Arrays
Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) **MD 347**
Tube Banks
The Numerical Prediction of Viscous Flow and Heat Transfer in Tube Banks **HT 565**
Tube Bundles
Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) **MD 540**
Tube Eversion Process
On the Eversion of a Superplastic, Thin Walled Tube (TB) **MT 428**
Tube Wall Temperatures
Tube Wall Temperatures of an Eccentrically Located Horizontal Tube within a Narrow Annulus (TN) **HT 548**
Tubes
Analytical Solutions of Viscous Flow in Constricted or Widened Tubes **AM 241**
Approximate Solution for Pulsatile Laminar Flow in a Circular Rigid Tube (TB) **F 131**
Augmentation of Horizontal In-Tube Condensation by Means of Twisted-Tape Inserts and Internally Finned Tubes **HT 17**
The Calibration of Preston Tubes in Transpired Turbulent Boundary Layers (77-WA/FE-1) **F 10** (D) **F 15**; (AC) **F 16**
Determination of Void Fraction, Incipient Point of Boiling, and Initial Point of Net Vapor Generation in Sodium-Heated Helically Coiled Steam Generator Tubes **HT 268**
DNB Oscillatory Temperature and Thermal Stress Responses for Evaporator Tubes Based on Rivulet Model (77-WA/NE-5) **P 424**
The Dynamics of Thin Liquid Films in Rotating Tubes: Approximate Analysis **F 187**
Effect of Circumferential Wall Heat Conduction on Boundary Conditions for Heat Transfer in a Circular Tube (TN) **HT 537**
Effect of Circumferentially Nonuniform Heating on Laminar

Combined Convection in a Horizontal Tube **HT 63**; (Er) **HT 367**
The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**
An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**
An Experimental Study of Progressive Strain Growth Due to Thermal-Stress Ratcheting **MT 150**
An Experimental and Theoretical Study of Heat Transfer in Vertical Tube Flows **HT 86**
Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**
Modified Governing Equations for Unsteady Compressible Flow in Ducts **AM 723**
Particle Deposition in a Charged Aerosol Flowing Through a Conducting Tube **F 449**
Plastic Collapse of Oval Straight Tubes Under External Pressure (77-PVP-57) **PVT 46**
Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **MT 421**
Prediction of Temperature Profiles in Fluid Bed Boilers (76-HT-66) **HT 508**
Pressure Tubes: The Pressure Vessels in the CANDU Nuclear Power Reactor (IPT) **PVT 328**
Turbulent Heat Transfer Downstream of an Unsymmetric Blockage in a Tube **HT 588**
Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**
Steady Flow in Tubes of Slowly Varying Cross Section **AM 475**

Tubesheets
Analysis of Vertically Mounted Through-Tube Heat Exchangers (77-JPGC-NE-19) **P 380**; (D) (AC) **P 389**
Design Curves for Stress Analysis of U-Tube Heat Exchanger Tubesheet With Integral Channel and Head **PVT 221**
The Tubesheet Analysis Method in the New HEI Condenser Standards (77-JPGC-NE-18) **P 363**

Tubular Beams
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) **MD 328**

Tugcu, P. Plastic Stability of Pipes and Tees Exposed to External Couples **PVT 424**

Tumors
Effect of Inhomogeneities and Finite Boundaries on Temperature Distributions in a Perfused Medium, With Application to Tumors **BE 235**

Turbine Blades
Comparison of Some Optimal Control Methods for the Design of Turbine Blades (77-DET-43) **MD 173**
Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 680**
The Effects of Free-Stream Turbulence Intensity and Velocity Distribution on Heat Transfer to Curved Surfaces (77-GT-48) **P 159**

Turbine Blading Erosion
The Influence of Droplet Size on the Turbine Blading Erosion Hazard **P 561**

Turbine Evaluation
The Concept of Availability for Gas Turbine Application Evaluation (78-GT-140) **P 452**

Turbine Gland Seals
Flow Excited Vibrations in High-Pressure Turbines (Steam Whirl) **P 219**

Turbine Engines
Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) **MD 139**

Turbine Inlet Temperature
Progress on Ceramic Rotor Blade Development for Industrial Gas Turbines (77-GT-42) **P 58**

Turbine Power
On Vortex Wind Power (D) **F 252**; (AC) **F 253**

Turbine Rotors
Air Model Tests of Labyrinth Seal Forces on a Whirling Rotor **P 533**
The Effect of Hub Fairings on Wind Turbine Rotor Performance (TB) **F 120**

Turbine Stage
Measurements of the Performance of an Turbine Stage at Positive and Negative Mass Flow and Rotational Speed (Four-Quadrant Characteristics) (77-GT-14) **P 22**

Turbine Stage Geometrics
Measurement of Nonsteady Forces in Three Turbine Stage Geometrics Using the Hydraulic Analogy **P 525**

Turbine-Transmission Systems
Three-Shaft Automotive Turbine-Transmission Systems of the KTT Type—Performance and Features (77-GT-94) **P 95**

Turbines
Aerodynamic Design and Verification of a Two-Stage Turbine With a Supersonic First Stage **P 197**
Baseline Gas Turbine Development Program, Thrid Quarterly Progress Report (GR) **MD 205**
On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D) (AC) **P 591**
Development of Gas Turbine Performance Seeking Logic (78-GT-13) **P 571**; (D) (AC) **P 575**
The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) **P 630**
The Effects of Ambient Conditions on Gas Turbine Emissions—Generalized Correction Factors (78-GT-87) **P 640**
Evaluation Program for New Industrial Gas Turbine Materials (78-GT-145) **P 704**
A Gas Path Performance Diagnostic System to Reduce J75-P-17 Engine Overhaul Costs (78-GT-116) **P 691**; (D) (AC) **P 697**
High Frequency Ultrasonic Evaluation of Ceramics for Gas Turbines **P 549**
High-Temperature Potential of Uncooled Radial Turbines (77-GT-46) **P 294**
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) **P 655**
Measurements of the Performance of an Turbine Stage at Positive and Negative Mass Flow and Rotational Speed (Four-Quadrant Characteristics) (77-GT-14) **P 22**
Moisture Measurements in a Low Pressure Steam Turbine Using a Laser Light Scattering Probe **P 544**
Plate Fin Regenerators for Industrial Gas Turbines (78-GT-26) **P 576**
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) **MD 637**

Turbofan Engines
Design and Development of a High-Pressure Combustor for Aero-Gas-Turbines (77-GT-96) **P 129**

Turbomachine Annuli
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) **P 618**

Turbomachinery
An Analytic Study of the Energy Dissipation of Turbomachinery Bladed-Disk Assemblies Due to Inter-Shroud Segment Rubbing (77-DET-73) **MD 222**
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) **P 592**; (D) **P 601-602**; (AC) **P 602**
The Dynamic Characteristics of O-Ring (77-DET-27) **MD 132**
An Experimental Study of the Steady-State Response of Oil-Film Dampers (77-DET-33) **MD 216**
Experiments on the Transient Response of Oil-Film Dampers (77-GT-31) **P 30**
Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**
Throughflow Calculations for Transonic Axial Flow Turbines **P 212**

Turbomachinery Rotor Passage
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P 676**; (D) **P 688-689**; (AC) **P 689**

Turbomachines
A Method for Testing Cascades with Converging Sidewalls **P 457**

Turbopumps
The Space Shuttle Main Engine High-Pressure Fuel Turbopump Rotordynamic Instability Problem (77-GT-49) **P 48**

Turbulence
Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**
Deterministic Stability Analysis of a Wind Loads Structure **AM 165**
Experimental Study of a Solid-Gas Jet Issuing Into a Transverse Stream (78-WA/FE-2) **F 333**; (D) **F 338**; (AC) **F 339**
MHD Flows and Turbulence (BR) **AM 232**
Turbulence Characteristics of the Flow Downstream of a Symmetric, Plane Sudden Expansion **F 308**
Turbulence in Liquids (BR) **AM 232**

Turbulence Intensity
The Effects of Free-Stream Turbulence Intensity and Velocity Distribution on Heat Transfer to Curved Surfaces (77-GT-48) **P 159**

Turbulence Measurements
Turbulence Measurements in Boundary Layers Along Mildly Curved Surfaces (77-WA/FE-6) **F 37**; (D) **F 45**; (AC) **F 46**; (D) **F 375**; (AC) **F 376**
Turbulence Measurements in a Separated and Reattached Flow Over a Blunt Flat Plate **F 224**

Turbulence Models
An Evaluation of Mean Reynolds Stress Turbulence Models: The Triple Velocity Correlation **F 47**

Turbulence Structures
The Effect of Buoyancy on the Turbulence Structure of Vertical Round Jets **HT 659**

Turbulent Boundary Layers
Boundary Layer Calculation for Analysis and Design **F 232**
Effect of Free-Steam Turbulence on Heat Transfer through a Turbulent Boundary Layer **HT 671**
Experimental Heat Transfer Behavior of a Turbulent Boundary Layer on a Rough Surface With Blowing **HT 134**
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P 676**; (D) **P 688-689**; (AC) **P 689**
Interacting Turbulent Boundary Layer over a Wavy Wall **HT 878**
A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages **F 180**
A Simple Integral Approach to Turbulent Thermal Boundary Layer Flow (TN) **HT 744**

Turbulent Energy Dissipation Model
A Turbulent Energy Dissipation Model for Flows With Drag Reduction **F 107**

Turbulent Flow
Boundary-Layer Development on an Axial-Flow Compressor Stator Blade (77-GT-11) **P 287**; (D) **P 292**; (AC) **P 293**
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**
Flow in Finite-Width Thrust Bearings Including Inertial Effects II—Turbulent Flow **L 339**
Gas Flow Through Cracks **F 453**
Laminar-Turbulent Flow in a Spherical Annulus **F 281**
Loss Characteristics of Orifices and Nozzles **F 299**
The Numerical Prediction of the Turbulent Flow and Heat Transfer in the Entrance Region of a Parallel Plate Duct (D) **HT 561**; (AC) **HT 562**
Prediction of Incompressible Turbulent Separating Flow (78-WA/FE-4) **F 427**
Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow **F 215**
Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**

Turbulent Flow Heat Transfer
The Effect of Internal Solidification on Turbulent Flow Heat Transfer and Pressure Drop in a Horizontal Tube **HT 387**

Turbulent Flow Measurement
Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**

Turbulent Free Convection
An Experimental Investigation of Heat Transfer and Buoyancy Induced Transition from Laminar Forced Convection to Turbulent Free Convection over a Horizontal Isothermally Heated Plate **HT 429**

Turbulent Heat Transfer
A Surface Rejuvenation Model for Turbulent Heat Transfer in Annular Flow With High Prandtl Numbers **HT 92**
Turbulent Heat Transfer Downstream of an Unsymmetric Blockage in a Tube **HT 588**
Turbulent Heat Transfer by Free Convection from a Rough Surface (TN) **HT 727**

Turbulent Jet
Prediction of the Three-Dimensional Velocity Field of a Deflected Turbulent Jet (D) **F 249**; (AC) **F 250**

Turbulent Pipe Flow
Heat Transfer in Turbulent Pipe Flow for Liquids Having a Temperature-Dependent Viscosity **HT 224**

Turbulent Process
Mixing Process Induced by the Vorticity Associated with the Penetration of a Jet into a Cross Flow **P 485**

Turbulent Shear Flows
Calculation of Turbulent Shear Flows: Status and Ten-Year

Outlook (Op) **F 3**

Turbulent Spray Flame
Measurements of Mean and Fluctuating Temperature in a Turbulent Spray Flame (77-WA/TM-1) **I 210**

Turbulent Thermal Convection
Correlation Equations for Turbulent Thermal Convection in a Horizontal Fluid Layer Heated Internally and from Below **HT 416**

Turbulent Thermal Plume
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along a Vertical Isothermal Wall **HT 177**

Turbulent Transport Parameters
Derivation of Turbulent Transport Parameters in Isotropic Turbulence (D) **F 139**; (AC) **F 140**

Turbulent Wakes
A Theoretical Investigation on the Structure of Fan Wakes (76-WA/FE-22) **F 113**

Turbulently Fluctuating Temperature
Interferometric Investigation of Turbulently Fluctuating Temperature in an LMFBR Outlet Plenum Geometry (76-WA/HT-82) **HT 334**

Turhan, D. The Influence of the Retardation Time of the Heat Flux on Pulse Propagation (BN) **AM 433**

Turning Operations
Investigation of the Cutting Process Dynamics in Turning Operations (77-WA/PROD-41) **I 323**

Turteltaub, M. J. Calculation of Peak Yarn Tension During Ring-Spinning (77-Tex-6) **I 167**

Turning Vanes
A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) **F 439**

Twill, J. P. An Analysis of the Three-Way Underlapped Hydraulic Spool Servovalve **DS 117**

Twisted-Tape Inserts
Augmentation of Horizontal In-Tube Condensation by Means of Twisted-Tape Inserts and Internally Finned Tubes **HT 17**

Two-Dimensional Diffusers
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**

Two-Dimensional Heat-Conduction Transients
The Critical Time Step for Finite-Element Solutions to Two-Dimensional Heat-Conduction Transients **HT 120**

Two-Dimensional Hoppers
Granular Material Flow in Two-Dimensional Hoppers **AM 43**

Two-Dimensional Multiple Scattering
Two-Dimensional Multiple Scattering Comparison of Theory with Experiment (77-HT-48) **HT 480**

Two-Dimensional Passages
A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages (D) (AC) **F 376**

Two-Dimensional Potential Flow Problems
Approximate Numerical Solutions for Two-Dimensional Potential Flow Problems (TB) **F 122**

Two-Dimensional Solidification Interface
Shape of Two-Dimensional Solidification Interface During Directional Solidification by Continuous Casting **HT 3**

Two-Dimensional Surfaces
Squeeze Film Flow Between Arbitrary Two-Dimensional Surfaces Subject to Normal Oscillations **L 316**

Two-Phase Flow
Availability Ratio for Performance of Pipeline Components in Two-Phase Flow **F 350**
An Isentropic Streamtube Model for Flashing Two-Phase Vapor-Liquid Flow **HT 595**
A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) **F 395**

Two-Phase Nozzle Flow
Calculation of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (76-WA/FE-31) **F 355**

Two-Sphere Problem
On the Exact Solution for the Two-Sphere Problem in Axisymmetrical Potential Flow **AM 463**

Two-Stage Turbine
Aerodynamic Design and Verification of a Two-Stage Turbine With a Supersonic First Stage **P 197**

Two Taper Roller Bearings
The Ridigity and Performance of a Helicopter Gearbox With a Cantilevered Housing and Two Taper Roller Bearings (77-DET-103) **MD 696**

Tyler, A. L. Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) **F 17**

Tylikowski, A. Stability of a Nonlinear Rectangular Plate **AM 583**

U

U-Shaped Bellows
Design of U-Shaped Bellows Considering Low-Cycle Fatigue **PVT 382**

Udwadia, F. E. A Methodology for Optimal Sensor Locations for Identification of Dynamic Systems **AM 188**; Uniqueness of Damping and Stiffness Distributions in the Identification of Soil and Structural Systems **AM 181**

Ueda, H. Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) **MD 460**

Uesugi, S. A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) **MD 451**

Uga, T. An Experimental Study of Progressive Strain Growth Due to Thermal-Stress Ratcheting **MT 150**

Uhlman, J. S., Jr. A Partially Cavitating Hydrofoil of Finite Span **F 353**

Uhrich, R. *(author)* Curve Linkage Manipulator (GR) **MD 205**

Ultrasonic Transducer
High Frequency Ultrasonic Evaluation of Ceramics for Gas Turbines **P 549**

Ünal, H. C. Determination of Void Fraction, Incipient Point of Boiling, and Initial Point of Net Vapor Generation in Sodium-Heated Helically Coiled Steam Generator Tubes **HT 268**

Unbalance Response
Optimum Bearing and Support Damping for Unbalance Response and Stability of Rotating Machinery (77-GT-27) **P 89**

Unbehauen, H. *(reviewer)* Parameterschatzverfahren Zur Systemidentifikation (BR) **DS 101**

Undercutting Tooth Surface
An Analysis of Undercut Conditions and of Appearance of Contact Lines Envelope Conditions of Gears (77-DET-2) **MD 423**

Underground Electric Cable Systems
Flow and Heat Transfer in Convectively Cooled Underground Electric Cable Systems: Part 1—Velocity Distributions and Pressure Drop Correlations (76-WA/HT-45) **HT 30**; Part 2—Temperature Distributions and Heat Transfer Correlations (76-WA/HT-42) **HT 36**

Underlapped Hydraulic Spool Servovalve
An Analysis of the Three-Way Underlapped Hydraulic Spool Servovalve **DS 117**

Undersea Systems
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) **I 249**

Underwater Platforms
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**

Unequal Pedestal Stiffness
Influence of Unequal Pedestal Stiffness on the Instability Regions of a Rotating Asymmetric Shaft **AM 400**

Uniaxial Endochronic Theory
Finite-Difference Solution for the Uniaxial Endochronic Viscoplastic Wave Problem (BN) **AM 221**

Uniaxial Relation
Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**

Unidirectional Load
Fracture Under Combined Loads by Maximum-Energy-Release-Rate Criterion **AM 553**

Unidirectional Motion
The Wear of High Molecular Weight Polyethylene—Part I: The Wear of Isotropic Polyethylene Against Dry Stainless Steel in Unidirectional Motion **L 208**

Uniform Axial Stress
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) **AM 281**

Uniform Blowing
Transition Behavior of a Blasius-Type Boundary Layer Subjected to Uniform Blowing or Suction (BN) **AM 450**

Uniform Cantilever
Vibration Frequencies for a Uniform Cantilever With a Rotational Constraint at a Point (DDM) **AM 422**

Uniform Convergence
On Uniform Convergence of the Finite-Element Method (BN) **AM 210**

Uniform Exit Velocity Profiles
Developing Region of Laminar Jets With Uniform Exit Velocity Profiles **F 55**; (D) **F 374**; (AC) **F 375**

Uniform Load
Annular Dome Subjected to Uniform Load Over an Eccentric Circular Area **AM 845**

Uniform Stability
Stability of a Nonlinear Rectangular Plate **AM 583**

Uniform Strains
On the Stress Field and Surface Deformation in a Half Space With a Cuboidal Zone in Which Initial Strains Are Uniform **AM 302**

Uniform Surface Heat Flux
Mixed Convection about a Sphere with Uniform Surface Heat Flux (TN) **HT 542**

Uniform Wall Temperature
Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (TN) **HT 539**

Uniformly Distributed Load
Indentation of a Membrane on an Elastic Half Space **AM 320**

Unilateral Interface
Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**

Unique Results
Uniqueness of Damping and Stiffness Distributions in the Identification of Soil and Structural Systems **AM 181**

Uniqueness Analysis
On the Uniqueness and Stability of Endochronic Theories of Material Behavior **AM 263**

Ünsal, M. Linearized Stability Analysis of Film Condensation **HT 629**

Unsteady Aerodynamic Response
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) **P 664**; (D)(AC) **P 675**

Unsteady Aerodynamics
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**

Unsteady Boundary Layer Flows
Some Effects of Mechanically-Produced Unsteady Boundary Layer Flows on Convective Heat Transfer Augmentation **HT 25**

Unsteady Compressible Flow
Modified Governing Equations for Unsteady Compressible Flow in Ducts **AM 723**

Unsteady Transonic Thin-Airfoil
Unsteady Transonic Thin-Airfoil Theory for Power-Law Upwash (BN) **AM 440**

Unsteady Viscous Flow
Numerical Modelling of Unsteady, Separated Viscous Flow (D) **F 138**; (AC) **F 139**

Unsymmetric Blockage
Turbulent Heat Transfer Downstream of an Unsymmetric Blockage in a Tube **HT 588**

Upadhyay, P. C. A Comparison of Deformation and Flow Theories Under Dynamic Loading Conditions (BN) **AM 431**; On the Dynamic Expansion of a Circular Hole in an Infinite Plate of Rate-Sensitive Plastic Material **AM 67**; The Dynamic Hole Expansion Problem for a Plate of Elastic-Perfectly Plastic Material (BN) **AM 961**

Upper-Bound Analysis
Disk and Strip Forging with Side-Surface Foldover—Part 1: Velocity Field and Upper-Bound Analysis (77-WA/PROD-36) **I 421**; Part 2: Evaluation of the Upper-Bound Solutions (77-WA/Prod-37) **I 428**
Limit Analysis of Hollow Disk Forging: Part 1: Upper Bound (77-WA/PROD-2) **I 340**; (D) (AC) **I 345**

Upper Bounds
Harmonic Waves in Layered Composites: New Bounds on Eigenfrequencies (78-WA/APM-23) **AM 829**

Upright Surfaces
An Investigation of the Laminar Overfire Region Along Upright Surfaces (77-HT-68) **HT 112**

Upset Forging
A Numerical Method For Simultaneous Prediction of Metal Flow and Temperatures in Upset Forging of Rings (77-WA/PROD-35) **I 413**

Urabe, Y. Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**

Uranishi, K. Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**

Urashima, C. Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 360**

Usui, E. Analytical Prediction of Three Dimensional Cutting Process—Part 1: Basic Cutting Model and Energy Approach (77-WA/PROD-9) **I 222**; Part 2: Chip Formation and Cutting Force With Conventional Single-Point Tool (77-WA/PROD-10) **I 229**; Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/PROD-11) **I 236**

V

Vacuum Arc Remelting
Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (77-Lub-30) **L 226**; (D) **L 232, 233**; (AC) **L 234**

Vacuum Pumping System
Special Engineering Problems of TFTR (77-WA/NE-4) **P 417**

Vacuum Vessel
Structural Design for a 10-GWh SMES Vacuum Vessel **PVT 263**

Vaidyanee, S. Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/PROD-1) **I 113**

Validation Testing
A Survey of Rail Vehicle Testing for Validation of Theoretical Dynamic Analyses **DS 238**

Vallance, J. K. Reliability and Durability of Ceramic Regenerators in a Gas Turbine (77-GT-59) **P 73**

Valori, R. Rolling-Element Fatigue Life of AMS 5749 Corrosion Resistant, High Temperature Bearing Steel (D) **L 233**; (AC) **L 234**

Valve Dynamics
Computer Aided Design Studies of a Multiple Cylinder Refrigeration Compressor (78-DE-16) **MD 599**

Valve Venting
Control of Steam Venting Noise in Power Plants (77-IPC-PWR-1) **P 369**

Valves
On the Nonlinear Response of a Relief Valve (77-DET-81) **MD 675**

Van Amerongen, E. Prediction of Traction and Microgeometry Effects on Rolling Contact Fatigue Life (77-Lub-6) **L 156**; (D) (AC) **L 165**

Vance, J. M. Squeeze Film Damper Characteristics for Gas Turbine Engines (77-DET-18) **MD 139**; Torquewhirl—A Theory to Explain Nonsynchronous Whirling Failures of Rotors With High-Load Torque **P 235**

Van der Houwen, P. J. *(author)* Construction of Integration Formulas for Initial Value Problems (BR) **AM 233**

Van Der Krogt, A. H. Mathematical and Experimental Investigation Into the Auto-Frettaging of High-Pressure Mudpump Fluid Ends (77-Pet-42) **PVT 39**

Van Dooren, r. Analytical Solutions of Viscous Flow in Constricted or Widened Tubes **AM 241**

Van Dyck, F. A Systematic Approach to the Adaptive Control of the Electro-Discharge Machining Process (D) **I 309**; (AC) **I 310**

van Heijningen, G. J. J. Study of Lubricant Jet Flow Phenomena in Spur Gears—Out of Mesh Condition (D) **MD 68**; (AC) **MD 68**

van Rij, H. M. A Slip Model for Finite-Element Plasticity **AM 527**

Van Wieren, S. The Optimal Machine Tool Control Problem **DS 170**

Vane Settings
A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) **F 439**

Vaneless Diffusers
A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) **P 592**; (D) **P 601-602**; (AC) **P 602**

Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**

Vapor Bubble Emission
Spatial Distribution of Active Sites and Bubble Flux Density **HT 56**

Vapor Bubbles
Experiments and Universal Growth Relations for Vapor Bubbles With Microlayers **HT 41**

Vapor Generation
Determination of Void Fraction, Incipient Point of Boiling, and Initial Point of Net Vapor Generation in Sodium-Heated Helically Coiled Steam Generator Tubed **HT 255**

Vapor-Liquid Flow
An Isentropic Streamtube Model for Flashing Two-Phase Vapor-Liquid Flow **HT 595**

Vapor Subcooling
Corresponding States Correlations of the Extreme Liquid Superheat and Vapor Subcooling (77-HT-20) **HT 492**

Varadan, T. K. The Large Amplitude Vibration of a Hinged Beam (BN) **AM 959**; Snap-Buckling of Orthotropic Shallow Spherical Shells (BN) **AM 445**

Vara Prasad, C. M. An Investigation of the Influence of Back Pressure on the Diffusion of Mass and Momentum of Fuel in Diesel Spray **P 241**

Varghese, G. Influence of Volute Surface Roughness on the Performance of a Centrifugal Pump **F 473**

Variability Sources
A New Cumulative Damage Model: Part I **AM 246**; Part 2 **AM 251**

Variable Density
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) **L 261**; (D) **L 269**; (AC) **L 270**

Variable-Displacement Engine
Progress On The Variable-Displacement Spark Ignition Engine (GR) **MD 203**

Variable Eccentricity
The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow (D) **F 377-380**; (AC) **F 380**

Variable Input
Simple Finite-Time Settling Control and Manipulated-Variable Softening for Reserve Reaction, Overshoot, and Oscillatory Process (77-WA/Aut-12) **DS 50**

Variable Interpretation
A State Variable Interpretation of Some Rate-Dependent Inelastic Properties of Steel **MT 395**

Variable Physical Properties
Variable Physical Properties in Laminar Heating of Pseudoplastic Fluids with Constant Wall Heat Flux **HT 220**

Variable Pressure Fields
Bubble Growth in Variable Pressure Fields **HT 453**

Variable Thickness
On the Determination of the Fundamental Frequency of VibratBon of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) **MD 703**

Variable Transmission
FORD/ERDA Continuously Variable Transmission. Phase I. Tranemission Design. Progress Report No. 9, January 1-March 31, 1976 (GR) **MD 203**

Variable Viscosity
Variable Viscosity Effect on the Laminar Water Boundary Layer on Heated Cones **AM 481**

Varshney, B. S. On the Miki-Rohsenow Pool Boiling Correlation (TN) **HT 733**

Varying Cross Section
Propagation of a Pulse in a Nonhomogeneous Elastic Rod With Varying Cross Section (BN) **AM 942**

Steady Flow in Tubes of Slowly Varying Cross Section **AM 475**

Vascular Permeability
Measurement of Burn-Induced Leakage of Macromolecules in Living Tissue **BE 153**

Vascular System
Therapeutic Effects of Postburn Cooling **BE 149**

Vasudeva, R. Y. Propagation of a Pulse in a Nonhomogeneous Elastic Rod With Varying Cross Section (BN) **AM 942**

V-Corrugated Plate
Free Convection across Inclined Air Layers with One Surface V-Corrugated **HT 410**

Vehicle Configurations
A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) **F 443**

A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) **F 434**

Vehicle Controllers
Steering Controller Design For Automated Guideway Transit Vehicles **DS 1**

Vehicle Drive Line
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) **MD 644**

Vehicle Dynamic Analyses
A Survey of Rail Vehicle Testing for Validation of Theoretical Dynamic Analyses **DS 238**

Vehicle Dynamics
Wheel Rotations and Trailer Dynamics (BN) **AM 206**

Vehicle-Follower Control System
Longitudinal Control of Automated Guideway Transit Vehicles Within Platoons **DS 302**

A State-Constrained Approach to Vehicle-Follower Control for Short Headway Automated Transit Systems **DS 291**

Vehicle Operating Speed
Optimization of Rail Vehicle Operating Speed With Practical Constraints (78-WA/DSC-28) **DS 260**

Vehicle Responses
Graphical Output-Oriented Computer Model of a Railroad Freight Car With Conventional Trucks (77-RT-11) **I 67**

Vehicle Suspension
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) **MD 500**

Vehicle Transmission Elements
Optimal Control of Flywheel Hybrid Transmissions (77-WA/Aut-3) **DS 24**

Vehicles
Analysis of Minimum Crush Deformation in Impact of Vehicles of Different Weight Classes (TB) **I 294**

Vectoring Exhaust Systems
Structural and Cooling Aspects of the Aden Nonaxisymmetric Exhaust Nozzle (77-GT-110) **P 308**

Vehicular Acceleration
Effects of Jerk Limiting on the Stability of Automated Transit Vehicles **DS 298**

Vehicular Stability
Stability of a Vehicle on a Multispan Simply Supported Guideway **DS 326**

Velocity
The Acceleration of Thin Cylindrical Bodies in a Viscous Fluid **AM 1**

Analytic Derivation of Static Pressure Distribution in Fully Developed Helical Flows **F 201**

Analytical Solutions of Viscous Flow in Constricted or Widened Tubes **AM 241**

The Behavior of Gas Bubbles in the Casson Fluid **AM 37**

Cold Flow Tests of a Bluff-Body Flame Stabilizer **F 323**

Derivation of Turbulent Transport Parameters in Isotropic Turbulence (D) **F 139**; (AC) **F 140**

The Design of Current Carrying Mechanisms Operating in a Magnetic Field (77-DET-20) **MD 574**

A Diffusion Factor Correlation for Centrifugal Impeller Stalling (78-GT-61) **P 592**; (D) **P 601-602**; (AC) **P 602**

Dynamics of Multirigid-Body Systems (78-WA/APM-10) **AM 889**

The Effect of Compressor Exit Flow Distribution on Air Placement in Annular Combustors (78-GT-84) **P 444**

Effect of Flow Direction on Calibration of Hot-Film Anemometers at Low Velocities (TN) **HT 381**

Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/PROD-27) **I 297**

Effects of Structural and Forming Parameters on the Efficiency of Energy Transfer in Impact Forming Machines (77-WA/PROD-1) **I 113**

Elastic Interface Waves and Sliding Between Two Solids **AM 325**

An Evaluation of Mean Reynolds Stress Turbulence Models: The Triple Velocity Correlation **F 47**

Exact and Approximate Equations for Real-Fluid Isentropic Flow **F 413**

On the Exact Solution for the Two-Sphere Problem in Axisymmetrical Potential Flow **AM 463**

Experimental Heat Transfer Behavior of a Turbulent Boundary Layer on a Rough Surface With Blowing **HT 134**

An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**

Experimental Study of a Solid-Gas Jet Issuing Into a Transverse Stream (78-WA/FE-2) **F 333**; (D) **F 338**; (AC) **F 339**

An Experimental Study of Three-Dimensional Characteristics of Propeller Wakes Under Stalling Conditions (D) **F 141**; (AC) **F 142**

On the Flow Regimes of Downhole Flow of a Gas-Particle Mixture **F 410**

Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) **MD 347**

Fuel Spray Trajectory in Diesel Engines (77-DGP-1) **P 326**
Influence of Rotatory Inertia on Steady-State Crack Propagation in a Finite Plate Subjected to Out-of-Plane Bending **AM 130**
Initial Response of a Rock Penetrator **AM 559**
Instabilities of Tubular Beams Simultaneously Subjected to Internal and External Axial Flows (77-DET-95) **MD 328**
Inviscid Rotational Flow Through Sprays (BN) **AM 934**
Laminar Shear Layer Due to a Thin Flat Plate Oscillating With Zero Mean Velocity (78-WA/FE-16) **F 367**
Laminar-Turbulent Flow in a Spherical Annulus **F 281**
Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) **L 418**
Loss Characteristics of Orifices and Nozzles **F 299**
Low Frequency Bloch Waves for Wave Equations Whose Speed Is a Deterministic, or Randomlike, Periodic Function **AM 331**
Measurement of Roller Speed in a Cylindrical Roller Bearing Using a Laser Anemometer **L 486**
Mixing Process Induced by the Vorticity Associated with the Penetration of a Jet into a Cross Flow **P 465**
Motion of a Large Dusty Buoyant Thermal With a Vortex Ring (78-WA/APM-8) **AM 711**
Nonparallel Effects on the Stability of Jet Flows (78-WA/APM-16) **AM 717**
Periodic Discontinuities in the Acceleration of Spheres in Free Flight (77-WA/FE-3) **F 17**
Plane Progressive Waves in a Binary Mixture of Linear Elastic Materials **AM 493**
Pressure Losses Inside Tool Joints Can Alter Drilling Hydraulics (77-Pet-71) **PVT 172**
The Response of an Oscillator With Bilinear Hysteresis to Stationary Random Excitation **AM 923**
Rotor Wake Generated Unsteady Aerodynamic Response of a Compressor Stator (78-GT-112) **P 664**; (D) (AC) **P 675**
Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**
Small Perturbation Analysis of Nonuniform Rotating Disturbances in a Vaneless Diffuser (78-GT-154) **P 711**
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**
Strain Rate Effects in Low Speed Two-Body Abrasion **L 181**
A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) **MD 451**
Torquewhirl—A Theory to Explain Nonsynchronous Whirling Failures of Rotors With High-Load Torque **P 235**
The Velocity Characteristics of Ventilated Rooms **F 291**
Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) **MD 514**

Velocity Distribution
Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) **F 265**; (D) **F 274**; (AC) **F 275**
Boundary Layer Calculation for Analysis and Design **F 232**
The Effects of Free-Stream Turbulence Intensity and Velocity Distribution on Heat Transfer to Curved Surfaces (77-GT-48) **P 159**
An Investigation of the Influence of Back Pressure on the Diffusion of Mass and Momentum of Fuel in Diesel Spray **P 241**
Laminar Throughflow of Varying-Quality Steam Between Corotating Disks (76-WA/FE-41) **F 194**
Quasi Two-Dimensional Analysis of a Flow Through a Centrifugal Pump Impeller (D) (AC) **F 248**
Review—Self-Sustaining Oscillations of Flow Past Cavities **F 152**
Turbulence Characteristics of the Flow Downstream of a Symmetric, Plane Sudden Expansion **F 308**

Velocity Distributions
Flow and Heat Transfer in Convectively Cooled Underground Electric Cable Systems: Part 1—Velocity Distributions and Pressure Drop Correlations (76-WA/HT-45) **HT 30**
Laminar Mixed-Mode, Forced and Free, Diffusion Flames **HT 253**

Velocity Field
Prediction of the Three-Dimensional Velocity Field of a Deflected Turbulent Jet (D) **F 249**; (AC) **F 250**
A Slip Model for Finite-Element Plasticity **AM 527**
Squeeze Film Flow in Arbitrarily Shaped Journal Bearings Subject to Oscillations **L 323**
Squeeze Film Flow Between Arbitrary Two-Dimensional Surfaces Subject to Normal Oscillations **L 316**

Velocity Fields
Limit Analysis of Hollow Disk Forging—Part 1: Upper Bound (77-WA/PROD-2) **I 340**; (D) (AC) **I 345**

Velocity Measurements
Simultaneous Measurements of Velocity and Temperature in Nonisothermal Flows **HT 340**

Velocity Profile
An Experimental Study of Three-Dimensional Turbulent Boundary Layer and Turbulence Characteristics Inside a Turbomachinery Rotor Passage (78-GT-114) **P 676**; (D) **P 688-689**; (AC) **P 689**
Measurement of Buoyant Jet Entrainment from Single and Multiple Sources (77-HT-43) **HT 442**
Symmetric Sink Flow Between Parallel Plates (78-WA/FE-6) **F 477**
Variable Physical Properties in Laminar Heating of Pseudoplastic Fluids with Constant Wall Heat Flux **HT 220**

Velocity-Profile Forms
The Computation of Optimum Pressure Recovery in Two-Dimensional Diffusers **F 419**

Velocity Profiles
Boundary-Layer Development on an Axial-Flow Compressor Stator Blade (77-GT-11) **P 287**; (D) **P 292**; (AC) **P 293**
Convection in an Enclosure-Source and Sink Located Along a Single Horizontal Boundary **HT 205**
Developing Region of Laminar Jets With Uniform Exit Velocity Profiles **F 55**; (D) **F 374**; (AC) **F 375**
Dynamics of Developing Laminar Non-Newtonian Falling Liquid Films With Free Surface **AM 19**
The Dynamics of Thin Liquid Films in Rotating Tubes: Approximate Analysis **F 187**
Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**
Flow in Finite-Width Thrust Bearings Including Inertial Effects II—Turbulent Flow **L 339**
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along a Vertical Isothermal Wall **HT 177**
Influence of the Side Walls on the Turbulent Center-Plane Boundary-Layer in a Square Duct **F 91**
Laminar Mixed-Mode, Forced and Free, Diffusion Flames **HT 253**
Liquid Jet Impingement Normal to a Disk in Zero Gravity (78-WA/FE-1) **F 204**
Measurements of Skewed Boundary Layers in a Curved Duct With Variation in Streamwise Pressure Gradient (TB) **F 124**
Modified Governing Equations for Unsteady Compressible Flow in Ducts **AM 723**
Partial Spectral Expansions for Problems in Thermal Convection **HT 435**
Red Cell Motion and Deformation in the Microcirculation **BE 139**
Reynolds Number Dependence of Skin Friction and Other Bulk Flow Variables in Two-Dimensional Rectangular Duct Flow **F 215**
A Theoretical Investigation on the Structure of Fan Wakes (76-WA/FE-22) **F 113**
Turbulence Measurements in a Separated and Reattached Flow Over a Blunt Flat Plate **F 224**
A Turbulent Energy Dissipation Model for Flows With Drag Reduction **F 107**
Vortex Sheet Analysis of the Giromill **F 340**

Velocity Ratio
Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy **P 525**

Velocity Scale
Prediction of Incompressible Turbulent Separating Flow (78-WA/FE-4) **F 427**

Velocity Vector
A Yaw-Insensitive Static Pressure Probe **F 229**

Velocity Waveform
Tailoring the Waveform of a Periodic Flow With a Programmable Damper **F 287**

Venkatasubramanian, N. K. On the Flexural Rigidity of a Micropolar Elastic Circular Cylinder (BN) **AM 429**

Venkatesh, V. C. On a Diffusion Wear Model for High Speed Steel Tools **L 436**

Vent Noise
Control of Steam Venting Noise in Power Plants (77-IPC-Pwr-1) **P 369**

Ventilated Rooms
The Velocity Characteristics of Ventilated Rooms **F 291**

Ventricle System
Simulation of Cardiovascular Dynamics With the All-Pneumatic Artificial Ventricle System as a Replacement of the Myocardial Function **BE 35**

Ventricular Geometry
Left Ventricular Function: Correlation With Deformation of the Myocardium (77-WA/Bio-11) **BE 99**; (D) (AC) **BE 104**

Ventricular Wall
Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**

Vanu Vinod, P. K. On a New Model of Oblique Cutting (77-WA/PROD-6) **I 287**

Verge, K. W. *(author)* Investigation of Rotary Actuation Technique (GR) **MD 206**

Verma, K. On the Influence of Finite Wall Conductance and Inertia Effects of Hydrostatic Thrust Bearing **L 271**

Vertical-Axis Wind Turbine
Vortex Sheet Analysis of the Giromill **F 340**

Vertical Channel
Vertical Channel Parallel Flow Modification Associated With Density Extremum (TB) **F 128**

Vertical Excitations
Dynamic Response of Circular Plates Resting on Viscoelastic Half Space **AM 379**

Vertical Heating Cylinder
Melting and Natural Convection Due to a Vertical Embedded Heater (TN) **HT 368**

Vertical Isothermal Wall
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along a Vertical Isothermal Wall **HT 177**

Vertical-Lateral Dynamics
Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part I—A Mathematical Model **DS 311**; Part II—Simulated Versus Experimental Data **DS 319**

Vertical Motion
Nonlinear Kinematics of Wheel-Rail Contact **AM 664**

Vertical Plate
Free Convection Effects on Stokes' Problem for a Vertical Plate in Rarefied Gas-Medium (BN) **AM 697**
Nonsimilar Laminar Free Convection Flow Along a Nonisothermal Vertical Plate (TN) **HT 163**

Vertical Plates
Development of Wall and Free Plumes Above a Heated Vertical Plate **HT 184**

Vertical Surface
Heat Transfer by Natural Convection Between a Vertical Surface and a Stably Stratified Fluid (TN) **HT 378**
Leading Edge Effects in Transient Natural Convection Flow Adjacent to a Vertical Surface (TN) **HT 731**

Vertical Temperature Gradients
Prediction of Temperature Profiles in Fluid Bed Boilers (76-HT-66) **HT 508**

Vertical Track Buckling
Determination of Admissible Temperature Increases to Prevent Vertical Track Buckling **AM 585**

Vertical Tube Flows
An Experimental and Theoretical Study of Heat Transfer in Vertical Tube Flows **HT 86**

Vessel Design
Bursting Pressure as the Basis for Cylinder Design **PVT 374**

Vessel Pressure
Lower-Bound Limit Pressures for the Cylinder-Cylinder Intersection: A Parametric Survey **PVT 65**

Vessels
A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) **PVT 91**
Stress Intensity Factors for Reactor Vessel Nozzle Cracks **PVT 141**

Vibration
Analysis of Performance of Pneumatic Impact Absorbers (77-DET-1) **MD 236**
Analytical and Experimental Studies of a Dynamic System With a Gap (77-DET-89) **MD 480**
Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part I—A Mathematical Model **DS 311**
Design of Clamped Composite-Material Plates to Maximize Fundamental Frequency (77-DET-86) **MD 274**
On the Determination of the Fundamental Frequency of Vibration of Clamped Rectangular Plates of Variable Thickness (77-WA/DE-1) **MD 703**
Dynamic Characteristic of Multirecess Externally Pressurized Oil Journal Bearing **L 467**
Dynamic Response of Packets of Blades by The Finite Element Method (77-DET-70) **MD 680**
The Dynamics of Multi-Rotor Systems Supported on Oil Film

Bearings (77-DET-29) **MD 156**
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) **L 369**; (AC) **L 377**
Experimental and Analytical Investigation of Self-Excited Chatter Vibrations in Metal Cutting (77-DET-156) **MD 92**
An Experimental Study of First-Passage Failure of a Randomly Excited Structure (78-WA/APM-14) **AM 917**
Experiments on Fluidelastic Vibration of Cantilevered Tube Bundles (77-DET-96) **MD 540**
Feedback Control of Saw Blade Temperature With Induction Heating (77-WA/Prod-22) **I 119**
Flow Excited Vibrations in High-Pressure Turbines (Steam Whirl) **P 219**
Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**
Fluid Dynamic Excitation of Centrifugal Compressor Rotor Vibrations (77-FE-22) **F 73**
Fluidelastic Vibration of Heat Exchanger Tube Arrays (77-DET-90) **MD 347**
Forced Vibration of Continuous System With Nonlinear Boundary Conditions (77-DET-80) **MD 487**
Frequencies and Loss Factors of Multicored Sandwich Beams (77-DET-75) **MD 667**
Gear Mesh Excitation Spectra for Arbitrary Tooth Spacing Errors, Load and Design Contact Ratio (77-DET-66) **MD 71**
A General Mode Approach to Nonlinear Flexural Vibrations of Laminated Rectangualr Plates **AM 623**
Interaction of the Rotor Blade Shock Waves in Supersonic Compressors With Upstream Stator Vanes (77-GT-93) **P 140**
The Large Amplitude Vibration of a Hinged Beam (BN) **AM 959**
Measurement of Fan Vibration Using Double Pulse Holography (78-GT-111) **P 655**
Modal Method for Free Vibration of Oval Cylindrical Shells With Simply Supported or Clamped Ends **AM 142**
Model Formulation of Complex Mechanisms With Multiple Inputs: Part II—The Dynamic Model (77-WA/DE-10) **MD 755**; (D) (AC) **MD 761**
Natural Frequencies of Clamped Orthotropic Rectangular Plates With Varying Thickness (78-WA/APM-9) **AM 871**
Nonlinear Flexural Vibration of an Elastic Ring (BN) **AM 428**
On the Nonlinear Response of a Relief Valve (77-DET-81) **MD 675**
Nonlinear Vibrations of Orthotropic Plates Carrying Concentrated Mass (TB) **I 293**
Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) **MD 319**
Optimization of Pneumatic Vibration Isolation System for Vehicle Suspension (77-DET-17) **MD 500**
Optimizing Railroad Freight Car Truck Suspension Systems Having Coulomb Damping (77-WA/RT-6) **I 311**; (D) **I 316**; (AC) **I 317**
The Parametric Response of a Horizontal Beam Carrying a Concentrated Mass Under Gravity **AM 843**
The Prediction of Passenger Riding Comfort From Acceleration Data (77-WA/Aut-6) **DS 34**
Random Excitation of a Nonlinear Vibration Neutralizer (77-DET-94) **MD 681**
Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) **MD 819**
Rotational Vibration With Backlash: Part I (77-DET-105) **MD 363**; (Er) **MD 582**
Simulation of Continuous Systems by Periodic Structures **AM 385**
Study of the Random Vibration of Nonlinear Systems by the Gaussian Closure Technique **AM 393**
A Theorem on the Free Vibration of Damped System (D) **AM 225**; (AC) **AM 226**
Torsional Vibrations of a Boiler Feed Pump (77-DET-28) **MD 637**
Torsional Vibrations of a Vehicle Drive Line (77-DET-24) **MD 644**
Transient Motion of an Elastic Shell of Revolution in an Acoustic Medium **AM 149**
On the Variation of Timoshenko's Shear Coefficient With Frequency (BN) **AM 695**
Vibration of an Elastic Beam Subjected to Discrete Moving Loads (77-DET-79) **MD 514**
Vibration of a Group of Circular Cylinders in a Confined Fluid (D) (AC) **AM 455**
Vibrations and Dynamic Response of Membranes With Arbitrary Shape **AM 153**
Wide-Band Random Vibration of Circular Plates (77-DET-97) **MD 690**

Vibration Analysis
Detection of Rolling Element Bearing Damage by Statistical Vibration Analysis (77-DET-83) **MD 229**
Vibration Analysis of Circular Plates With Eccentric Hole (BN) **AM 215**

Vibration Characteristics
Vibration Characteristics of Hollow Symmetrical Blades Based on Thin Shell Theory (77-DET-76) **MD 183**

Vibration Control
Alternative Tuned Absorbers for Steady State Vibration Control of Tall Structures (77-DET-84) **MD 279**

Vibration Frequencies
Vibration Frequencies for a Uniform Cantilever With a Rotational Constraint at a Point (DDM) **AM 422**

Vibration Isolators
One Stage and Two Stage Vibration Isolators as Applied to High Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) **MD 33**

Vibration Modes
Coupled Vertical-Lateral Dynamics of a Pneumatic Tired Vehicle: Part II—Simulated Versus Experimental Data **DS 319**
Impact Buckling of Thin Bar Via Monte Carlo Method **AM 586**

Vibration-Rotation Band
Accurate Spectral Modeling for Infrared Radiation (77-HT-69) **HT 240**
Theoretical Determination of Band Absorption for Nonrigid Rotation with Applications to CO, NO, N_2O, and CO_2 **HT 230**

Vibrational Exciting Force
Stress Condition, Vibrational Exciting Force, and Contact Pattern of Helical Gears with Manufacturing and Alignment Error (77-DET-67) **MD 77**

Vibrations
Critical Speeds, Stability and Response of a Geared Train of Rotors (77-DET-30) **MD 535**; (D) **MD 538**; (AC) **MD 539**
One Stage and Two Stage Vibration Isolators as Applied to High Speed Textile Spindles to Achieve Noise Reduction (77-DET-99) **MD 33**
Roots of Lambda Matrices (78-WA/APM-4) **AM 859**
A Simple Stability Analysis for Flexible Rotors in Tilting Pad Bearings (77-DET-22) **MD 155**
Stability of a Simply-Supported Beam Subjected to Randomly Spaced Moving Loads (77-DET-78) **MD 507**
Torsional Vibrations of Pretwisted Cantilever Plates (77-DET-77) **MD 528**

Vibratory Behavior
Dynamic Analysis of an Assembly of Shrouded Blades Using Component Modes (77-DET-72) **MD 520**

Vibratory Forcing Functions
Vibratory Forcing Functions Produced by Nonuniform Cascades (77-GT-57) **P 82**

Vibratory Oscillations
The Analytical and Experimental Evaluation of Vibratory Oscillations in Realistically Proportioned Mechanisms (78-DE-1) **MD 762**

Vibratory Power
Vibratory Power Delivery to Rock During Rotary-Vibratory Drilling (77-Pet-69) **PVT 179**

Vidyasagar, M. *(author)* Nonlinear Systems Analysis (BR) **DS 161**

Ville, J. P. Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) **P 439**

Vinet, R. Evaluation of the Creep Resistance of Wire Rope End Attachments (TB) **MT 214**

Virlogeux, H. *(translator)* Applications of the Theory of Plasticity in Soil Mechanics (BR) **AM 705**

Viscodispersive Media
Elastic Dispersion, Homogeneous Dispersive Media and an Application to Periodic Elastic Media **AM 337**

Viscoelastic Analogy
A Quadrature Representation of the Viscoelastic Analogy in the Frequency Domain (BN) **AM 955**

Visco-Elastic Celluloid
Mechanical Behavior of Nonlinear Visco-Elastic Celluloid Under Superimposed Hydrostatic Pressure **PVT 271**

Viscoelastic Fluid
An Investigation Into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) **L 56**

Viscoelastic Half Space
Dynamic Response of Circular Plates Resting on Viscoelastic Half Space **AM 379**

Viscoelastic Layer
The Sliding of a Rigid Indentor Over a Power Law Viscoelastic Layer **AM 111**

Viscoelastic Plate
Dynamics of Viscoelastic Plate With Curved Boundaries of Arbitrary Shape **AM 629**

Viscoelastic Stress
Stress in Glass Fibers Induced by the Draw Force (78-WA/APM-21) **AM 765**

Viscoelastic Tapered Cantilevers
Dynamics of Neutrally Buoyant Inflated Viscoelastic Tapered Cantilevers Used in Underwater Applications (77-DET-92) **MD 337**

Viscoelasticity
Viskoelastizität und Plastizität. Thermomechanisch Konsistente Materialgleichungen (Viscoelasticity and Plasticity. Thermomechanically Consistent Constitutive Equations). (BR) **AM 457**

Viscometers
Heat Transfer in the Biconical and Concentric Spherical Viscometers (TN) **HT 750**

Viscoplastic Constitutive Equations
Viscoplastic Constitutive Equations for Copper With Strain Rate History and Temperature Effects **MT 388**

Viscoplastic Flow
An Analysis of High Temperature Metal Creep—Part II: A Constitutive Formulation and Verification **MT 371**

Viscoplastic Wave Propagation
Finite-Difference Solution for the Uniaxial Endochronic Viscoplastic Wave Problem (BN) **AM 221**

Viscosity
An Analysis of Stress Relaxation in Elastico-Viscous Fluid Lubrication of Journal Bearings (77-Lub-31) **L 287**; (D) **L 294**; (AC) **L 295**
Convection in a Porous Medium Heated from Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient (77-HT-56) **HT 448**
Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) **L 304**; (D) (AC) **L 307**
Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) **L 404**; (D) **L 416**; (AC) **L 417**
Heat Transfer in Turbulent Pipe Flow for Liquids Having a Temperature-Dependent Viscosity **HT 224**
The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (77-Lub-9) **L 261**; (D) **L 269**; (AC) **L 270**
A Simplified Model of Cage Motion in Angular Contact Bearings Operating in the EHD Lubrication Regime (77-Lub-16) **L 395**

Viscosity Effect
Variable Viscosity Effect on the Laminar Water Boundary Layer on Heated Cones **AM 481**

Viscous-Damped Jet Engine Dynamics
Significance of Disk Flexing in Viscous-Damped Jet Engine Dynamics (78-GT-107) **P 647**

Viscous Damper Instability
Analysis and Experimental Investigation of the Stability of Intershaft Squeeze Film Dampers—Part 2: Control of Instability (77-DET-26) **MD 558**

Viscous Damping
Response of a Multidegree-of-Freedom System to Nonstationary Random Excitation **AM 649**
Transient Response of Continuous Elastic Structures With Viscous Damping (78-WA/APM-5) **AM 877**

Viscous Flow
Analytical Solutions of Viscous Flow in Constricted or Widened Tubes **AM 241**
Modified Governing Equations for Unsteady Compressible Flow in Ducts **AM 723**
Numerical Modelling of Unsteady, Separated Viscous Flow (D) **F 138**; (AC) **F 139**
The Numerical Prediction of Viscous Flow and Heat Transfer in Tube Banks **HT 565**

Viscous Fluid
The Acceleration of Thin Cylindrical Bodies in a Viscous Fluid **AM 1**

Viscous Fluid Film
Surface Ribbing of a Thin Viscous Fluid Film Emerging From a Spreader or Roller **L 462**

Viscous Fluid Motion
Steady Flow in Tubes of Slowly Varying Cross Section **AM 475**

Viscous Force
Normal Mode Solution of Fluid-Coupled Concentric Cylindrical Vessels (77-PVP-37) **PVT 350**
Viscous Incompressible Flow
A Numerical Study of the Laminar Viscous Incompressible Flow Through a Pipe Orifice (78-WA/FE-5) **F 467**
Viscous Incompressible Fluid
Laminar-Turbulent Flow in a Spherical Annulus **F 281**
Viscous Shear Heating
The Effect of Viscous Shear Heating on Both Film Thickness and Rolling Traction in an EHL Line Contact—Part I: Fully Flooded Conditions **L 346**; (Er) **L 466**; Part II: Starved Conditions **L 353**
Viscous Sublayer
The Viscous Sublayer in a Streamwise Corner (BN) **AM 219**
Viscous-Viscoelastic Model
Creep and Recovery of 2618 Aluminum Alloy Under Combined Stress With a Representation by a Viscous-Viscoelastic Model (78-WA/APM-3) **AM 507**
Viskanta, R. Combined Conduction-Radiation Heat Transfer Through an Irradiated Semi-transparent Plate (TN) **HT 169**
Vliet, G. C. Magnetic Field Effects on Bubble Growth in Boiling Liquid Metals **HT 466**
Void Fraction
A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) **F 395**
Void Fraction Determination
Determination of Void Fraction, Incipient Point of Boiling, and Initial Point of Net Vapor Generation in Sodium-Heated Helically Coiled Steam Generator Tubes **HT 268**
Void Growth
Void Growth and Local Necking in Biaxially Stretched Sheets **MT 164**
Volatile Coal Dust-Air Mixtures
A Model for Flame Propagation in Low Volatile Coal Dust-Air Mixtures (77-HT-18) **HT 105**
Volumetric Energy Sources
Hydrodynamic Stability in Horizontal Fluid Layers with Uniform Volumetric Energy Sources (TN) **HT 729**
Volumetrically-Heated Pool
Thermal Instability of a Volumetrically-Heated Pool With Phase Change and a Free Upper Surface (TN) **HT 376**
Volute Surface Roughness
Influence of Volute Surface Roughness on the Performance of a Centrifugal Pump **F 473**
Voorhes, W. G. Theory of Linear Continuous Extrusion—Linex (77-PROD-17) **I 37**
Vortex Flow
The Effect of Taylor Vortex Flow on the Radial Forces in an Annulus Having Variable Eccentricity and Axial Flow; **F 210** (D) **F 377-380**; (AC) **F 380**
Vortex Induced Oscillations
On Some Aspects of Unsteady Aerodynamics and Vortex Induced Oscillations of Elliptic Cylinders at Subcritical Reynolds Number (77-DET-91) **MD 354**
Vortex Motion
Vortex Motion and Induced Pressures in a Model of the Aortic Valve **BE 216**
Vortex Ring
Motion of a Large Dusty Buoyant Thermal With a Vortex Ring (78-WA/APM-8) **AM 711**
Vortex Shedding
Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**
Vortex Sheet Analysis
Vortex Sheet Analysis of the Giromill **F 340**
Vortex Structure
Turbulence Characteristics of the Flow Downstream of a Symmetric, Plane Sudden Expansion **F 308**
Vortex Wind Power
On Vortex Wind Power (77-WA/FE-20) **F 79**; (D) **F 252**; (AC) **F 253**
Vortices
Experiments on the Onset of Longitudinal Vortices in Horizontal Blasius Flow Heated from Below **HT 71**
Vorticity
Asymmetric Swirling Flows in Turbomachine Annuli (78-GT-109) **P 618**
The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments **PVT 297**
Mixing Process Induced by the Vorticity Associated with the Penetration of a Jet into a Cross Flow **P 465**
Nonaxisymmetric Flow through Annular Actuator Disks: Inlet Distortion Problem (78-GT-80) **P 604**
Second Flow in Rotating Bends **P 553**
Vorticity Functions
Peristaltic Pumping of a Newtonian Fluid With Particles Suspended in It at Low Reynolds Number Under Long Wavelength Approximations **AM 32**
Vorticity Values
Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**

W

Wagner, A. J. Power Suppliers Need Nuclear (Invited Plenary Talks) **PVT 326**
Wagner, C. E. *(author)* Baseline Gas Turbine Development Program, Third Quarterly Progress Report (GR) **MD 205**
Wainwright, R. M. Power System Economics: On Selection of Engineering Alternatives (D) **P 343**; (AC) **P 346**
Wake Flow
Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**
Waked, A. M. Laminar-Turbulent Flow in a Spherical Annulus **F 281**
Wakeman, T. G. Structural and Cooling Aspects of the Aden Nonaxisymmetric Exhaust Nozzle (77-GT-110) **P 308**
Wakes
An Experimental Study of Three-Dimensional Characteristics of Propeller Wakes Under Stalling Conditions (D) **F 141**; (AC) **F 142**
Second Flow in Rotating Bends **P 553**
Walburn, F. J. Left Ventricular Function: Correlation with Deformation of the Myocardium (D) (AC) **BE 104**
Walker, B. H. A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) **PVT 164**
Walker, G. J. Boundary-Layer Development on an Axial-Flow Compressor Stator Blade (D) **P 292**; (AC) **P 293**
Walking Cycle
Determining Muscle Forces in the Leg During Normal Human Walking—An Application and Evaluation of Optimization Methods (77-WA/Bio-9) **BE 72**
Wall-Attached Blockage
Turbulent Heat Transfer Downstream of an Unsymmetric Blockage in a Tube **HT 588**
Wall Conductance Effects
On the Influence of Finite Wall Conductance and Inertia Effects of Hydrostatic Thrust Bearing **L 271**
Wall Curvature
Film Cooling of a Gas Turbine Blade **P 476**
Turbulence Measurements in Boundary Layers Along Mildly Curved Survaces (77-WA/FE-6) **F 37**; (D) **F 45**; (AC) **F 46**
Wall Erosion
Helium Blistering in Metals (78-Mat-5) **MT 411**
Wall Friction
Heat Transfer and Mean Structure of a Turbulent Thermal Plume Along a Vertical Isothermal Wall **HT 177**
Wall Heat Conduction
Effect of Circumferential Wall Heat Conduction on Boundary Conditions for Heat Transfer in a Circular Tube (TN) **HT 537**
Wall Heat Flux
An Investigation of the Laminar Overfire Region Along Upright Surfaces (77-HT-68) **HT 112**
Variable Physical Properties in Laminar Heating of Pseudoplastic Fluids with Constant Wall Heat Flux **HT 220**
Wall Ironing Study
A Study of Wall Ironing by the Finite Element Technique (77-WA/Prod-8) **I 31**
Wall Plume Development
Development of Wall and Free Plumes Above a Heated Vertical Plate **HT 184**
Wall Pressures
Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressures (78-WA/FE-3) **F 485**
Wall Shear
On the Flow Regimes of Downhole Flow of a Gas-Particle Mixture **F 410**
Wall Shear Stress
Analytical Solutions of Viscous Flow in Constricted or Widened Tubes **AM 241**
Steady Flow in Tubes of Slowly Varying Cross Section **AM 475**
Wall Stresses
Stresses in Left Ventricular Wall and Biaxial Stress-Strain Relation of the Cardiac Muscle Fiber for the Potassium-Arrested Heart **BE 116**
Wall Structure
The Effect of Longitudinal Heat Conduction on Crossflow Heat Exchanger **HT 348**
Wall Temperatures
Adiabatic Wall Temperature and Heat Transfer Downstream of Injection Through Two Rows of Holes (77-GT-50) **P 303**
Assessment of Surface-Heating Problems in Laser-Fusion Reactors **HT 311**
An Experimental and Theoretical Study of Heat Transfer in Vertical Tube Flows **HT 86**
Forced Convection Heat Transfer from Nonisothermal Thin Needles **HT 358**
Heat Transfer During Piston Compression **HT 527**
Heat Transfer in the Entrance Region of a Straight Channel: Laminar Flow with Uniform Wall Temperature (TN) **HT 539**
An Investigation of the Minimum Film Boiling Temperature on Horizontal Surfaces **HT 260**
Tube Wall Temperatures of an Eccentrically Located Horizontal Tube within a Narrow Annulus (TN) **HT 548**
Stress Distribution and Displacements on the Electromechanical Shield of a Superconducting Generator After a Three-Phase Fault (77-WA/DE-14) **MD 630**
A Thick-Walled Cylinder With an Axisymmetric Internal or Edge Crack (77-WA/APM-8) **AM 281**
Wall Thickness
Effect of Wall Thickness and Material on Flexural Fatigue of Hollow Rolling Elements (77-Lub-14) **L 39**
Wallis, G. B. An Isentropic Streamtube Model for Flashing Two-Phase Vapor-Liquid Flow **HT 595**
Walls
Influence of the Side Walls on the Turbulent Center-Plane Boundary-Layer in a Square Duct **F 91**
Walowit, J. The Influence of Variable Density and Viscosity on Flow Transition Between Two Concentric Rotating Cylinders (D) **L 269**; (AC) **L 270**
Walston, W. H., Jr. A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) **F 443**
Walton, J. R. The Sliding of a Rigid Indentor Over a Power Law Viscoelastic Layer **AM 111**
Wang, C. C. Rotational Vibration With Backlash—Part 1: (77-DET-105) **MD 363**; (Er) **MD 582**
Wang, D. P. Leading-Edge Correction for the Supercavitating Flat-Plate Hydrofoil (D) (AC) **F 280**
Wang, C. K. Wave Motion in Multilayered Liquid Films **AM 25**
Wang, C. Y. Fluid Dynamics of the Elliptic Porous Slider (BN) **AM 435**; The Squeezing of a Fluid Between Two Plates (Er) **AM 706**; Stokes Flow Due to Circular Scraping (BN) **AM 956**
Wang, C.-Y. The Elliptic Porous Slider at Low Crossflow Reynolds Numbers (TB) **L 444**; Fluid Dynamics of the Circular Porous Slider (Er) **AM 236**; Fluid Dynamics of the Long Porous Slider (Er) **AM 236**
Wang, C.-Yi. The Elliptic Porous Slider at Low Crossflow Reynolds Numbers (TB) **L 444**
Wang, N.-M. Analysis of Sheet Metal Stamping by a Finite-Element Method **AM 73**
Ward, J. R. Reduction of Heat Transfer to High Velocity Gun Barrels by Wear-Reducing Additives (77-HT-19) **HT 687**
Wardlaw, A. B. Jr. Lift on a Rotating Porous Cylinder (D) **F 136**; (AC) **F 137**
Warke, W. R. MPC-6 "Effects of Melting and Processing Variables on Mechanical Properties of Steel" Properties of Extra Low Sulfur Engineering and Die Steels (D) (AC) **MT 223**
Warner, S. E. *(author)* Battery-Flywheel Hybrid Electric Power System for Near Term Application. Volume 2. System Design (GR) **MD 204**
Warp Beams
On the Thermal Effects in a Warp Beam (A Wound-Yarn-Package) (77-Tex-3) **I 8**
Warren, J. H. Depth of Penetration as a Predictor of the Wear Polymers on Hard, Rough Surfaces **L 92**
Watkins, C. B. Laminar Shear Layer Due to a Thin Flat Plate Oscillating With Zero Mean Velocity

(78-WA/FE-16) **F 367**

Wassell, A. B. The Effects of Aircraft Engine Pollutant Emission Measurement Variability on Engine Certification Policy (78-GT-86) **P 638**

Wasted Configuration

Failure Analysis of Steam Generator Tubes With Dented and Wastage Configurations **PVT 354**

Watanabe, O. Stress Analysis of Pipe Bends by Ring Elements **PVT 112**

Watanabe, T. Forced Vibration of Continuous System With Nonlinear Boundary Conditions (77-DET-80) **MD 487**

Water

An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**

Film Thickness and Effective Viscosity of Some Fire Resistant Fluids in Sliding Point Contacts (77-Lub-2) **L 304**; (D) (AC) **L 307**

Turbulent Flow of Water in a Tube with Circumferentially Nonuniform Heating, with or without Buoyancy **HT 403**

Water Boundary Layer

Variable Viscosity Effect on the Laminar Water Boundary Layer on Heated Cones **AM 481**

Water-Cooling Channels

On the Design of High-Temperature Gas Turbine Blade Water-Cooling Channels (78-GT-29) **P 586**; (D) (AC) **P 591**

Water Disk

Liquid-Solid Impact Calculations with Triangular Elements (D) **F 255**; (AC) **F 256**

Water Expansion

Choked Expansion of Subcooled Water and the I.H.E. Flow Model **HT 275**

Water Flow

Effect of Polymer Additives on Cavitation Development and Noise in Water Flow Through an Orifice **F 493**

Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy **P 525**

Water Heat Pipes

Hydrogen Gas Generation in Water Heat Pipes **MT 313**

Water Injection System

Operating Experience and Sodium-Water Reaction Testing in the Large Leak Test Rig (77-JPGC-NE-6) **P 347**

Water Jet

CAVIJET™ Augmented Deep-Hole Drilling Bits (77-Pet-54) **PVT 52**

Water Jet Cutting

High Energy Water Jet Cutting Equations for Wood (77-WA/PROD-18) **I 452**

Measurements of Transition Boiling Data for Water Under Forced Convective Conditions (TN) **HT 382**

Water Response

Early Response of Hot Water to Sudden Release from High Pressure **HT 473**

Water Storage

A Parametric Study of Hot Water Storage for Peak Power Generation **P 229**

Water-Trickle Collector

Design and Operational Influences on Thermal Performance of "Solaris" Solar Collector (77-WA/Sol-2) **P 497**

Water Tunnel

An Experimental Study of the Flow-Induced Motions of a Flexible Cylinder in Axial Flow **F 389**

Water-Type Pressure Suppression

Experimental Tests of the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 605**

On the Scaling Laws for Air Clearing in Water-Type Pressure Suppression Systems **HT 601**

Water-Vapor Subcooling

Corresponding States Correlations of the Extreme Liquid Superheat and Vapor Subcooling (77-HT-20) **HT 492**

Water Viscosity

Convection in a Porous Medium Heated from Below: The Effect of Temperature Dependent Viscosity and Thermal Expansion Coefficient (77-HT-56) **HT 448**

Water Waves

Waves on Water of Variable Depth—Lecture Notes in Physics, Vol. 64 (BR) **AM 705**

Watson, J. D. Tool Life Distributions—Part 3: Mechanism of Single Injury Tool Failure and Tool Life Distribution in Interrupted Cutting (77-WA/Prod-39) **I 193**; Part 4: Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) **I 201**

Watson, L. T. Fluid Dynamics of the Elliptic Porous Slider (BN) **AM 435**

Waugh, R. E. Experimental Observations on the Thermal Fragility of Erythrocytes Including the Effects of Storage and Anticoagulant **BE 223**

Wave Dispersion

Elastic Dispersion, Homogeneous Dispersive Media and an Application to Periodic Elastic Media **AM 337**

Noninvasive Inference of Airway Network Geometry From Broadband Lung Reflection Data **BE 131**

Wave Effects

Wave Effects on the Transport to Falling Laminar Liquid Films **HT 143**

Wave Force

The Forces on a Cylinder Oscillating Sinusoidally in Water: Further Experiments **PVT 297**

Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) **MD 100**

Wave Guns

Boundary Layer Closure and Heat Transfer in Constant Base Pressure and Simple Wave Guns **HT 690**

Wave-Like Protuberances

Interacting Turbulent Boundary Layer over a Wavy Wall **HT 678**

Wave Loading

Extremes of Morison-Type Wave Loading on a Single Pile (77-DET-82) **MD 100**

Wave Motions

Experimental Study of Dispersive Waves in Beam and Rod Using FFT (BN) **AM 940**

A Ray Theory for Elastodynamic Stress-Intensity Factors **AM 123**

Unidirectional Wave Motions (BR) **AM 969**

Wave Motion in Multilayered Liquid Films **AM 25**

Wave Number

Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**

Wave Propagation

Finite-Difference Solution for the Uniaxial Endochronic Viscoplastic Wave Problem (BN) **AM 221**

Harmonic Waves in Layered Composites: New Bounds on Eigenfrequencies (78-WA/APM-23) **AM 829**

Harmonic Wave Propagation in a Periodically Layered, Infinite Elastic Body: Antiplane Strain **AM 343**

Plane Progressive Waves in a Binary Mixture of Linear Elastic Materials **AM 493**

Simulation of the Influence of Bonding Materials on the Dynamic Behavior of Laminated Composites (78-WA/APM-15) **AM 822**

Three-Dimensional Wave Propagation in a Cracked Elastic Solid **AM 807**

Wave Propagation and Instability in a Circular Semi-Infinite Liquid Jet Harmonically Forced at the Nozzle **AM 469**

Wave Propagation Speed

Response of a Multidegree-of-Freedom System to Nonstationary Random Excitation **AM 649**

Wave Refraction

Singular Reflection and Refraction of Elastic Waves Due to Separation **AM 548**

Waveform

Tailoring the Waveform of a Periodic Flow With a Programmable Damper **F 287**

Wavelength Approximations

Peristaltic Pumping of a Newtonian Fluid With Particles Suspended in at Low Reynolds Number Under Long Wavelength Approximations **AM 32**

Wavelength Guideway Irregularities

Power Spectral Density for Constrained Long Wavelength Guideway Irregularities (77-WA/Aut-13) **DS 18**

Wavelength Scattering

On the Estimation of a Crack Fracture Parameter by Long-Wavelength Scattering (BN) **AM 453**

Waves

On the Behavior of Acceleration Waves in Elastic Dielectrics With Internal State Variables **AM 745**

Calculations of Two-Phase Dispersed Droplet-In-Vapor Flows Including Normal Shock Waves (76-WA/FE-31) **F 355**

Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) **PVT 200**

The Effect of a Thin Layer Surface Inhomogeneity on Dynamic Surface Response **AM 95**

Elastic Interface Waves Involving Separation (D) **AM 226**; (AC) **AM 227**

Elastic Interface Waves and Sliding Between Two Solids **AM 325**

Instability of Elastically Suspended Tainter-Gate System Caused By Surface Waves on the Reservoir of a Dam (D) **F 140**; (AC) **F 141**

Low Frequency Bloch Waves for Wave Equations Whose Speed Is a Deterministic, or Randomlike, Periodic Function **AM 331**

A Motion Analysis of a Riser Upper Joint Interacting With a Floating Vessel (77-Pet-40) **PVT 91**

Oscillation Modes in Superposed Fluids (BN) **AM 204**

Quasi-Bifurcation of Rods Within an Axial Plastic Compressive Wave **AM 100**

Reflection of Acceleration Waves in an Elastic-Plastic Medium **AM 51**

Stress Waves in Nonelastic Solids **AM 970**

Wave Effects on the Transport to Falling Laminar Liquid Films **HT 143**

Waves From Suddenly Punched Hole in Finitely Stretched Elastic Sheet **AM 83**

Wavy Contacting Face Seals

Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) **L 81**; (D) (AC) **L 90**

Wayner, P. C., Jr. The Effects of the London-Van Der Waals Dispersion Force on Interline Heat Transfer **HT 155**

Weakest-Link Model

A Weakest-Link Model for the Prediction of Fatigue Crack Growth Rate **MT 170**

Weapon Structural Design

Sensitivity Analysis and Optimization of Structures for Dynamic Response (77-DET-40) **MD 311**

Wear

Analytical Prediction of Three Dimensional Cutting Process—Part 3: Cutting Temperature and Crater Wear of Carbide Tool (77-WA/PROD-11) **I 236**

Depth of Penetration as a Predictor of the Wear Polymers on Hard, Rough Surfaces **L 92**

Diamond Compact Cutter Supplies for Geothermal Bit Design **PVT 406**

The Economic Impact of Wear on Society (Op) **L 145**

Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/PROD-27) **I 297**

Hydrodynamic Lubrication and Wear in Wavy Contacting Face Seals (77-Lub-18) **L 81**; (D) (AC) **L 90**

Impact Wear of Materials (BR) **AM 458**

Mechanism of Lubrication by Surrounding Gas Molecules in Adhesive Wear **L 492**; (D) (AC) **L 499**

Methods of Decreasing Wear in Metal-Polymer Contacts **L 185**; (Er) **L 466**

A New Cumulative Damage Model: Part I **AM 246**; Part 2 **AM 251**; Part 3 (78-WA/APM-19) **AM 733**

Pressure Tubes: The Pressure Vessels in the CANDU Nuclear Power Reactor (IPT) **PVT 328**

Reducing the Temperature at Tool-Chip-Work Contact by Changing the Effective Thermal Conductivity of the Tool (TB) **I 387**

Review of Wear Problems in the Computer Industry (77-Lub-4) **L 189**; (D) **L 195-197**; (AC) **L 198**

Strain Rate Effects in Low Speed Two-Body Abrasion **L 181**

Stratapax Drill Bit for Gulf Coast Drilling (77-Pet-74) (TB) **PVT 234**

TRIBOLOGY: A System Approach to the Science and Technology of Friction, Lubrication and Wear (BR) **L 513**; **MT 336**

The Wear of High Molecular Weight Polyethylene—Part I: The Wear of Isotropic Polyethylene Against Dry Stainless Steel in Unidirectional Motion **L 208**

Wear In Lubricated Journal Bearings **L 104**

Wear of Titanium and Titanium Alloys Under Conditions of Rolling Stress **L 199**

Wear Equation

A Model of Performance and Life of Diamond Drill Bits (77-Pet-66) **PVT 184**

Wear Model

Flank Wear Model of Cutting Tools Using Control Theory (77-WA/PROD-20) **I 103**

Wear Polymers

Depth of Penetration as a Predictor of the Wear Polymers on Hard, Rough Surfaces **L 92**

Wear-Reducing Additives

Reduction of Heat Transfer to High Velocity Gun Barrels by Wear-Reducing Additives (77-HT-19) **HT 697**

Wear-Related Topography

Wear-Related Topography of Ion-Bombarded Surfaces (77-DET-61) **MD 16**

Wear Research

Wear Research and Development (Op) **L 449**

Wear Resistance

Centrifugally Cast Metallurgical Coatings for Wear Resistance in Plastics Molding Machines **L 423**

Effect of Structure on Wear Resistance of Co-, Fe-, and Ni-

Base Alloys **L 428**
Ion-Plated Thin Films for Anti-Wear Applications **L 129**
Wear Studies
Wear Studies on Aircraft Brake Materials **L 98**
Weaver, D. S. Flow Induced Vibrations of a Hydraulic Valve and Their Elimination **F 239**
Webb, P. Instrument for Continuous Measurement of O_2 Consumption and CO_2 Production of Men in Hyperbaric Chambers (77-WA/Bio-4) **BE 1**
Webbon, B. A Portable Personal Cooling System for Mine Rescue Operations (77-ENAs-53) **I 53**
Weber, H. E. Boundary Layer Calculation for Analysis and Design **F 232**
Weck, M. Determination of Surface Fatigue of Gear Material by Roller Tests (77-DET-49) **MD 433**
Wedding, J. B. Spectral and Probability-Density Nature of Square-Prism Separation-Reattachment Wall Pressure (78-WA/FE-3) **F 485**
Dynamic Finite Element Analyses of Two Compact Specimens (78-Mat-17) **MT 402**
Wedge Model
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 2: Experimental Investigation (77-DET-53) **MD 395**; (D) (AC) **MD 404**
Wedge Parameter
Laminar Boundary Layer Transfer over Rotating Bodies in Forced Flow **HT 496**
Wedge-Shaped Crack
Stress Singularity at the Corner of a Wedge-Shaped Crack or Inclusion (78-WA/APM-6) **AM 791**
Wedge-Shaped Hopper
Granular Material Flow in Two-Dimensional Hoppers **AM 43**
Wedge Stress
Bending Stress in Gear Teeth Having Circular Arc Profiles—Part 1 Analysis (77-DET-52) **MD 382**
Wei, R. P. Fracture Mechanics Approach to Fatigue Analysis in Design **MT 113**
Weigel, W. D. *(author)* Comparative Measurements of Different Electric Drives for an Experimental Motor Vehicle (GR) **MD 204**
Weight Class Difference
Analysis of Minimum Crush Deformation in Impact of Vehicles of Different Weight Classes (TB) **I 294**
Weighting Functions
The Prediction of Passenger Riding Comfort From Acceleration Data (77-WA/Aut-6) **DS 34**
Weingold, H. D. Vibratory Forcing Functions Produced by Nonuniform Cascades (77-GT-57) **P 82**
Weinstock, H. A Parametric Study to Relate Speed to Permissible Combinations of Track Geometry Deviations **DS 252**
Weir Profile
Datum Line Fixation for Linear Proportional Weirs (BN) **AM 441**
Weiss, V. *(editor)* Strength and Structure of Solid Materials (BR) **AM 231**
Welch, A. J. Asymptotic Rate Process Calculations of Thermal Injury to the Retina Following Laser Irradiation **BE 49**
Weld Heat-Affected Zones
Assessment of Weld Heat-Affected Zones in a Reactor Vessel Material (78-Mat-14) **MT 267**
Welded Joint
Thermal Stresses in a Submerged-Arc Welded Joint Considering Phase Transformations **MT 356**
Welded Pipes
A Finite-Element Model for Residual Stresses and Deflections in Girth-Butt Welded Pipes **PVT 256**
Weldments
On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) **MT 319**
Weldbonded Structures
Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) **MT 70**
Welds
An Improved Basis for Formulating Acceptance Criteria for Structural Welds (78-PVP-2) **PVT 85**
Wentz, K. R. Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) **MT 70**
Wepler, W. J. A Heat-Recovery System for Process Steam Industries (77-WA/Ener-15) **P 511**
Werle, M. J. Interacting Turbulent Boundary Layer over a Wavy Wall **HT 678**
Westermann, E. L. Thermal Response of Slabs Subjected to Non-Symmetric Convective Heat Transfer (78-DE-8) **MD 706**
Westervelt, W. W. Dynamic Tooth Loads and Stressing for High Contact Ratio Spur Gears (77-DET-101) **MD 69**
Wet-Bulb Temperatures
Air-Vapor Dynamics in Large-Scale Atmospheric Spray Cooling Systems (77-WA/FE-11) **FE 65**
Wet/Dry Surface
An Experimental and Analytical Study of a Unique Wet/Dry Surface for Cooling Towers **HT 520**
Wetenkamp, H. R. Thermal Damage and Rail Load Stresses in a 33-Inch Railroad Car Wheel (77-WA/RT-2) **I 363**
Weyer, H. B. Experimental Study of the Flow Field Within a Transonic Axial Compressor Rotor by Laser Velocimetry and Comparison With Through-Flow Calculations (77-GT-28) **P 279**; (D) **P 286**
Wheel Axis
Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) **MD 460**
Wheel-Axle Assembly
Fatigue Strength and Maintenance of the Wheel-Axle Assembly for the Japanese Fast Train (Shinkansen) **MT 227**
Wheel Profiles
Optimization of Rail Vehicle Operating Speed With Practical Constraints (78-WA/DSC-28) **DS 260**
Wheel-Rail Contact
Nonlinear Kinematics of Wheel-Rail Contact **AM 664**
Wheel/Rail Forces
Wear of Titanium and Titanium Alloys Under Conditions of Rolling Stress **L 199**
Wheel Rotations
Wheel Rotations and Trailer Dynamics (BN) **AM 206**
Wheel Speed
Effects of Rotary Dressing on Grinding Wheel Performance (77-WA/PROD-27) **I 297**
Wheel Stress
Thermal Damage and Rail Load Stresses in a 33-Inch Railroad Car Wheel (77-WA/RT-2) **I 363**
Wheelchair Cushion Design
Deformations and Stresses in Soft Body Tissues of a Sitting Person **BE 79**
Wheels
Mechanics of Rotary Dressing of Grinding Wheels (77-WA/PROD-23) **I 95**
Wheelset Forces
A Parametric Study to Relate Speed to Permissible Combinations of Track Geometry Deviations **DS 252**
Whirl Orbits
Eccentric Operation of the Squeeze-Film Damper (77-Lub-22) **L 369**; (D) (AC) **L 377**
Experimental and Analytical Investigation of Squeeze Film Bearing Damper Forced Induced by Offset Circular Whirl Orbits (77-DET-25) **MD 549**
Whirling
Torquewhirl—A Theory to Explain Nonsynchronous Whirling Failures of Rotors With High-Load Torque **P 235**
Whirling Rotor
Air Model Tests of Labyrinth Seal Forces on a Whirling Rotor **P 533**
Whitaker, S. *(author)* Review of Fundamental Principles of Heat Transfer (BR) **AM 235**
White, F. M. Some Thoughts on Journal Publication Trends (Op) **F 16**
White, W. E. On the Minimum-Commitment Method for Correlation of Creep-Rupture Data (TB) (78-Mat-18) **MT 333**; On Time-Temperature Parameters for Correlation of Creep-Rupture Data in Stainless Steel Weldments (78-Mat-1) **MT 319**
Whitelaw, J. H. Turbulence Characteristics of the Flow Downstream of a Symmetric, Plane Sudden Expansion **F 308**; The Velocity Characteristics of Ventilated Rooms **F 291**
Whiteman, J. R. *(editor)* The Mathematics od Finite Elements and Applications II (BR) **AM 232**
Whitman, A. M. Nonlinear Kinematics of Wheel-Rail Contact **AM 664**
Wicks, A. L. Measurement of Nonsteady Forces in Three Turbine Stage Geometries Using the Hydraulic Analogy **P 525**
Wide Band Process
Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) **MD 819**
Wide-Band Random Vibration
Wide-Band Random Vibration of Circular Plates (77-DET-97) **MD 660**
Widened Tubes
Analytical Solutions of Viscous Flow in Constricted or Widened Tubes **AM 241**
Wieting, A. R. A Finite Element Thermal Analysis Procedure for Several Temperature-Dependent Parameters (TN) **HT 551**
Wiggins, K. L. Orthogonal Machining of Bone **BE 122**
Wilcock, D. F. Effects of Surface Roughness in Lubrication — A Review of the Fourth Leeds-Lyon Symposium (FR) **L6**
Wilcox, J. P. *(author)* Investigation of a 30,000-RPM Turbine-Speed Hydraulic Pump (GR) **MD 206**
Wilhem, D. P. Application of the R-Curve Concept to Fatigue Crack Growth **416**; Application of Resistance Curves to Residual Strength Prediction **138**; Crack Growth Resistance at Low Stress Intensities **MT 134**
Wilkinson, J. P. D. *(author)* The Component Element Method in Dynamics (BR) **AM 235**
Williams, B. A Portable Personal Cooling System for Mine Rescue Operations (77-ENAs-53) **I 53**
Williams, M. *(editor)* Strength and Structure of Solid Materials (BR) **AM 231**
Wilmert, K. D. Optimality Criterion Techniques Applied to Mechanical Design (77-DET-41) **MD 319**
Wilson, A. D. Comparison of Dynamic Tear and Charpy-V-Notch Impact Properties of Plate Steels **MT 204**
Wilson, D. G. A Method for Correlating the Characteristics of Centrifugal Pumps in Two-Phase Flow (76-WA/FE-29) **F 395**
Wilson, R. E. The Effect of Hub Fairings on Wind Turbine Rotor Performance (TB) **F 120**; Vortex Sheet Analysis of the Giromill **F 340**
Wind Loaded Structure
Deterministic Stability Analysis of a Wind Loaded Structure **AM 165**
Wind Power
On Vortex Wind Power (77-WA/FE-20) **F 79**; (D) **F 252**; (AC) **F 253**
Wind Tunnel Resonance
Tailoring the Waveform of a Periodic Flow With a Programmable Damper **F 287**
Wind-Tunnel Study
A Wind-Tunnel Study of the Effect of Gap Flow and Gap Seals on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-23) **F 434**
A Wind-Tunnel Study of the Effect of Turning Vanes on the Aerodynamic Drag of Tractor-Trailer Trucks (77-WA/FE-15) **F 439**
Wind Tunnels
Investigations on Impulse Blade Cascades with Medium Deflection (78-GT-12) **P 432**
Short Duration Measurements of Heating to Cooled Gas Turbine Surfaces (78-GT-22) **P 439**
A Study of the Base Drag of Tractor-Trailer Trucks (77-WA/FE-18) **F 443**
Wind Turbines
The Effect of Hub Fairings on Wind Turbine Rotor Performance (TB) **F 120**
Vortex Sheet Analysis of the Giromill **F 340**
Windings
Transient Thermal Analysis of Epoxy-Impregnated Superconducting Windings in Linearly Ramped Fields (77-HT-77) **HT 702**
Window Flange
Flanged Acrylic Plastic Hemispherical Shells for Undersea Systems: Part 2—Static and Cyclic Fatigue Life Under Hydrostatic Loading (77-WA/Oce-1) **I 249**
Window Seal
Structural Performance of Acrylic Plastic Plane Disk Windows With Twin Conical Bearing Surfaces (77-WA/Oce-3) **I 273**
Winer, W. O. Asperity Interactions In EHD Contacts (77-Lub-19) **L 246**; (D) **L 252**; (AC) **L 253**; Glass Transitions in Lubricants: Its Relation to Elastohydrodynamic Lubrication (EHD) (77-Lub-3) **L 404**; (D) **L 416**; (AC) **L 417**; An Investigation Into the Influence of Fluid Viscoelasticity in a Squeeze Film Bearing (77-Lub-25) **L 56**; Light-Scattering Study of the Glass Transition in Lubricants (77-Lub-15) **L 418**
Wing Cavitation
A Partially Cavitating Hydrofoil of Finite Span **L 353**
Winer, W. O. *(reviewer)* Tribology: A Systems Approach

to the Science and Technology of Friction, Lubrication and Wear (BR) **L 513**

Winowich, N. S. Phase Change in Liquid Face Seals (77-Lub-12) **L 74**; (D) (AC) **L 79**

Winter, H. The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) **MD 417**

Wire Probes
Effect of Flow Direction on Calibration of Hot-Film Anemometers at Low Velocities (TN) **HT 381**
Simultaneous Measurements of Velocity and Temperature in Nonisothermal Flows **HT 340**

Wire Rope End Attachments
Evaluation of the Creep Resistance of Wire Rope End Attachments (TB) **MT 214**

Wire Temperature
Transient Free Convection from a Suddenly Heated Horizontal Wire **HT 423**

Wired Cables
Finite Extension of an Elastic Strand With a Central Core (78-WA/APM-7) **AM 852**

Wirth, X. The Effect of Notches at the Tooth Root Fillet on the Endurance Strength of Gears (77-DET-54) **MD 417**

Wittenburg, J. *(author)* Dynamics of Systems of Rigid Bodies (BR) **AM 458**

Wohl, M. E. Canine Pulmonary Input Impedance Measured by Transient Forced Oscillations **BE 67**

Wolf, E. J. Ride Quality of Autorack Cars (77-WA/RT-7) **I 171**

Wolf, L., Jr. Numerical Computation of the Stability of Plane Poiseuille Flow **AM 13**

Wolfe, H. F. Development of Random Fatigue Data for Adhesively Bonded and Weldbonded Structures Subjected to Dynamic Excitation (77-WA/Mat-1) **MT 70**

Wong, C. P. C. Magnetic Field Effects on Bubble Growth in Boiling Liquid Metals **HT 466**

Wong, J. Y. Application of The Parameter Plane Method to The Analysis of Directional Stability of Tractor-Semi-trailers **DS 9**

Wong, K. W. Cylindrical Anisotropic Waves in a Non-homogeneous Material (BN) **AM 687**

Woo, D. M. Plastic Deformation of Anisotropic Tubes in Hydraulic Bulging **MT 421**

Wood
High Energy Water Jet Cutting Equations for Wood (77-WA/PROD-18) **I 452**

Wood, K. *(author)* Design and Fatigue Testing of Integral Armored Servo Actuator Modified Trunnion (GR) **MD 204**

Wood, P. C. The Preparation of Calcium Superoxide at Subambient Temperatures and Pressures (77-ENAs-55) **I 26**

Wood Grinding
Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/PROD-31) **I 181**
An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/PROD-30) **I 153**

Wood Grinding Research
Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/PROD-28) **I 147**

Woolley, R. L. A Procedure for Computation of Fully Stalled Flows in Two-Dimensional Passages **F 180**

Work Hardening
On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**

Work Material
Tool Life Distributions—Part 4: Minor Phases in Work Material and Multiple-Injury Tool Failure (77-WA/Prod-40) **I 201**

Worm Gearing
A Study on Hourglass Worm Gearing With Developable Tooth Surfaces (77-DET-64) **MD 451**

Worm-Gears
An Analysis of Undercut Conditions and of Appearance of Contact Lines Envelope Conditions of Gears (77-DET-2) **MD 423**

Worm Surface
Theoretical and Experimental Investigation of a New Plane Toothed Wheel and Its Enveloping Hourglass Worm (77-DET-175) **MD 460**

Wormley, D. N. Rail Passenger Vehicle Lateral Dynamic Performance Improvement Through Active Control **DS 270**; Steering Controller Design For Automated Guideway Transit Vehicles **DS 1**

Wound-Yarn Package
On the Thermal Effects in a Warp Beam (A Wound-Yarn-Package) (77-Tex-3) **I 8**

Wright, D. V. Air Model Tests of Labyrinth Seal Forces on a Whirling Rotor **P 533**

Wright, P. K. Correlation of Tempering Effects With Temperature Distribution in Steel Cutting Tools (77-WA/PROD-16) **I 131**

Wrinkle Strain
Nonlinear Wrinkling of Nonlinear Membranes of Revolution **AM 533**

Wu, C.-H. Fracture Under Combined Loads by Maximum-Energy-Release-Rate Criterion **AM 553**; Nonlinear Wrinkling of Nonlinear Membranes of Revolution **AM 533**

Wu, H.-C. Angled Elliptic Notch Problem in Compression and Tension **AM 258**; Finite-Difference Solution for the Uniaxial Endochronic Viscoplastic Wave Problem (BN) **AM 221**

Wu, S. M. Bivariate Time Series Analysis of the Effective Force Variation and Friction Coefficient Distribution in Wood Grinding (77-WA/PROD-31) **I 181**; Development of an Experimental Setup for the Investigation of Grinding of Wood and a Proposal for a Pulsed Loading Technique (77-WA/PROD-28) **I 147**; An Orthomorphic Rheological Model of the Grinding of Wood (77-WA/PROD-30) **I 153**; Use of Secondary Input for Process Control—An Application to a Digester Pulping Process **DS 88**

Wydeven, T. The Preparation of Calcium Superoxide at Subambient Temperatures and Pressures (77-ENAs-55) **I 26**

Wyler, J. S. Analytical and Experimental Studies of ASME Flow Nozzles (77-WA/FM-1) **F 265**; (D) **F 274**;(AC) **F 275**; Moisture Measurements in a Low Pressure Steam Turbine Using a Laser Light Scattering Probe **P 544**

X

Xistris, G. D. Reliability of Machinery Using Fatigue Damage Accumulation Due to Random Vibrations (77-WA/DE-16) **MD 619**

Y

Yamamoto, M.A. Straight-Air Disk Brake Systems for Heavy Vehicles (77-DE-23) **MD 113**

Yang, A. T. Instantaneous Invariants in Three-Dimensional Kinematics **AM 409**

Yang, C-I. Sufficient Conditions for Stability of Rotating Flows **AM 7**

Yang, H. C. On Rigid Elliptic Inclusions in Orthotropic Solids (BN) **AM 683**

Yano, H. Approximate Numerical Solutions for Two-Dimensional Potential Flow Problems (TB) **F 122**

Yao, B. A Thermodynamic Study of Heating with Geothermal Energy (77-WA/Ener-1) **P 503**

Yao, S.-C. An Investigation of the Minimum Film Boiling Temperature on Horizontal Surfaces **HT 260**

Yao, L.-S. Free-Forced Convection in the Entry Region of a Heated Straight Pipe **HT 212**; Heat Transfer and Shear Stress on a Heated Cone (BN) **AM 952**; Thermal Instability of a Volumetrically-Heated Pool With Phase Change and a Free Upper Surface (TN) **HT 376**; Variable Viscosity Effect on the Laminar Water Boundary Layer on Heated Cones **AM 481**

Yarn Package
On the Thermal Effects in a Warp Beam (A Wound-Yarn-Package) (77-Tex-3) **I 8**

Yarn Tension
Calculation of Peak Yarn Tension During Ring-Spinning (77-Tex-6) **I 167**

Yarns
The Characteristics of Blended Polyester/Cotton Yarns Made by Ring and Open-End Spinning (77-Tex-4) **I 13**
Combing of Opening Room Blends of Cotton and Polyester (77-Tex-5) **I 21**

Yashima, S. Torsional Flutter in Stalled Cascade **P 317**

Yates, R. E. Some Sufficient and Some Necessary Conditions for the Stability of Multivariable Systems **DS 214**

Yazaki, Y. Influence of Inner Surface Defects on the Fatigue Strength of Pipe Subjected to Cyclic Internal Pressure (77-PVP-41) **PVT 380**

Yew, E. H. Experimental Study of Dispersive Waves in Beam and Rod Using FFT (BN) **AM 940**

Yield Condition
On the Uniqueness and Stability of Endochronic Theories of Material Behavior **AM 263**

Yield Function
On the Hardening Response in Small Deformation of Metals (78-WA/APM-17) **AM 755**

Yield Stress
General Yielding of Charpy V-Notch and Precracked Charpy Specimens **MT 183**

Yielding Foundations
Load-Deformation Behavior of Elastic Beam-Columns of Yielding Foundations **P 182**

Yin, W.-L. Inner Radius Expansion of a Cylinder or a Sphere Under Cold Working (BN) **AM 198**

Yip, M. C. Finite-Difference Solution for the Uniaxial Endochronic Viscoplastic Wave Problem (BN) **AM 221**

Yokote, T. Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) **MD 440**

Yonekura, M. A Research on High-Speed Hobbing With the Carbide Hob (77-DET-34) **MD 470**

Yoshida, K. Dynamics of a High-Speed Sliding Power Collector in Consideration of Sliding Friction (77-DET-93) **MD 242**

Yoshimura, T. A Technique for Compensating the Filter Performance by a Fictitious Noise **DS 154**

Yoshino, H. Appreciable Increase in Pitting Limit of Contact Surfaces Under Rolling and Sliding Conditions (77-DET-47) **MD 440**

Young, J. W. S. Measurements of Skewed Boundary Layers in a Curved Duct With Variation in Streamwise Pressure Gradient (TB) **F 124**

Young, R. D. Dynamic Analysis as an Aid to the Design of Marine Risers (77-Pet-82) **PVT 200**

Young, W. C. Structural and Mechanical Design of Tokamaks (77-WA/NE-2) **P 404**

Yousri, S. N. An Experimental Study of First-Passage Failure of a Randomly Excited Structure (78-WA/APM-14) **AM 917**

Yu, C. P. Air Mixing in a Model Lung Alveolus **BE 211**

Yu-Hawn Lin Fuel Controller Design in a Once-Through Subcritical Steam Generator System **P 189**

Z

Zakin, J. L. *(editor)* Turbulence in Liquids (BR) **AM 232**

Zaretsky, E. V. Experimental and Analytical Load-Life Relation for AISI 9310 Steel Spur Gears (77-DET-121) **MD 54**

Zdeblick, W. J. An Experimental Strategy for Designing Tool Life Experiments (77-WA/PROD-24) **I 441**

Zehner, P. Measurements of the Performance of an Turbine Stage at Positive and Negative Mass Flow and Rotational Speed (Four-Quadrant Characteristics) (77-GT-14) **P 22**

Ziegert, J. C. In-Vivo Mechanical Properties of Soft Tissue Covering Bony Prominences **BE 194**

Ziegler, H. *(author)* An Introduction to Thermomechanics (BR) **AM 966**

Zuber, N. Bubble Growth in Variable Pressure Fields **HT 453**

Zugaro, F. F. A Method for Measuring Surface Temperature Between Rolling/Sliding Steel Cylinders (77-Lub-1) **L 110**